

The Antiquaries Journal

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THE PLACE-NAMES OF MIDDLESEX APART FROM THE CITY OF LONDON

By J. E. B. GOVER, ALLEN MAWER, and F. M. STENTON
with the collaboration of S. J. MADGE

18s. net

This book was originally planned as a volume on the place-names of the City of London and the County of Middlesex, but the gradual closing of archives made continued work on unpublished documents impossible. As work upon the City of London was not in the same advanced stage of preparation as that upon Middlesex, for which Mr Gover and Dr Madge had, over some years, collected a vast mass of material, separate publication has now been decided upon.

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The Society of Antiquaries in War-Time

THE Council, being of opinion that the Fellows should have a full knowledge of the conditions under which the Society is carrying on its work at the present time, has authorized the following statement.

The first concern has been for the safety of the Society's possessions.

Thirteen thousand five hundred books, weighing about thirty-four tons, have been removed from Burlington House to twenty-five country repositories in Wales, south-west England, the north-west Midlands, the Chilterns, and elsewhere. The remaining books at Burlington House have been stacked and protected as far as is possible against fire. Those selected for evacuation were valuable manuscripts and rare books, topographical works, periodicals (English and foreign), with special reference to their usefulness and the difficulty of replacing them. The Library Index of about 500,000 cards, the Indexes of Lantern Slides and of Prints and Drawings, as well as a selection of the Society's stock of early publications, have also been removed.

The most valuable objects from the Society's collections, including the brasses and brass-rubblings, have been sent away. All the pictures, save for a few late portraits, have been sent away to the country, and in most cases photographic records of them have been made. The President's Chair in the Meeting Room and the Elizabethan Chair of the Noviomagians are also out of London.

The total cost of the various removals is nearly £700, which of course covers outward journeys only.

The Society is in co-operation with the other Societies in Burlington House in the defence of the buildings against air

attack by night. The Society's share of the cost of this service is £7. 10s. monthly.

The number of meetings has been necessarily reduced, but nineteen Ordinary Meetings have been held since the outbreak of war. In the present session they will continue to take place monthly in the afternoon.

Every effort will be made to issue the *Journal* regularly, and, thanks to the generous co-operation of the Oxford University Press, it is hoped that the quality of the publications will remain as before, though the actual date of issue of each number may be slightly irregular. The cost will undoubtedly rise. A volume of *Archaeologia* and two Research Reports are in the press.

Since the outbreak of war a few grants amounting to £370 have been made from the Research and Morris Funds, and the Society holds itself in readiness to help in emergencies in war-time.

Suggestions have been received from a few Fellows that the subscription should be decreased in war-time. It should be clear, however, from the foregoing statement that the Society has, up to the present, fulfilled its principal function and maintained to the full its duties to archaeology and the study of antiquities under considerable difficulties and at heavy additional expenditure. For these reasons the council has decided that the subscription be not reduced.

Papworth and his Ordinary

By S. M. COLLINS, F.S.A.

It is by no means improbable that many standard works of reference owe their being to sheer exasperation of spirit. It is not, certainly, ascertained that there has ever been compiled any *Dictionary of Bricklaying and Masonry*, for example, by a working Cabinet Minister. But such an association of subject and author would not be more far-fetched than that of a quite well-known civil engineer in his day, Sir George Grove, and his even better-known *Dictionary of Music*; or of the medical man Peter Mark Roget and his verbal *Thesaurus*. The amateur, it may be supposed, hampered in the prosecution of one of his secondary interests by the lack of any comprehensively encyclopaedic work on it, must snatch time from his main calling in order to provide such an adjunct, though he might have counted on finding it ready done for him by experts. Papworth and his *Ordinary of Arms* offer a reasonably close parallel to those other cases. The practising architect would trench upon his scanty leisure to labour at an index of coat-armour—felt as indispensable as it was lacking to a fuller pursuit of his heraldic studies—because an adequate one done by specialists was not to hand.

It is more than ninety years ago now that Papworth began to write the first index-slips of what was to become his *Dictionary of British Armorials*, ever since known as his *Ordinary*. Although it is in its kind a pioneer and a unique work, it was far from being the first known *Ordinary of Arms*. The need of such a list of coats must have been felt at a very early period in the history of heraldry: there have survived to us partial attempts from the fourteenth century onward, and doubtless they had more elementary predecessors of which we have no trace. Essentially an ordinary, in this use of the word, is a catalogue of armorial bearings, arranged so that any coat of arms sought for can be as readily found as possible; then to each specimen is attached the name of the bearer, so that the searcher's aim of discovering who bore the coat can be facilitated.

In all the early ordinaries known the arrangement of the arms is the obvious one: the main charge on the shield is the sole basis of the index. Thus all coats encountered by the compiler that have lions are brigaded together; all those with chevrons or with crosses; and so on. That simple method of marshalling sufficed; there was neither any order among the lion-bearing coats in

themselves, and the assortment of them with one, two, three, rampant, passant, gardant, with or without other charges, was fortuitous; nor was there any agreed order for these categories: one compiler begins with lions, another with crosses. The coats in the early ordinaries are numbered only by hundreds, and this degree of subdivision was sufficiently fine for the needs of that day. But it became inadequate for collections to be numbered by thousands, and would have been vexatious and largely useless for a survey of the total coat-armour for a country to be assessed in tens of thousands. The word ordinary has less reference to the fact that the coats of arms were arranged in order than to the underlying idea that they were gathered together in sets—or 'Suites'—of 'Ordinaries', in the other, earlier, sense of that unhappy and helpless term, i.e. of the commoner sort of heraldic charges.

It was with a greater perception of the needs of the case than had before been realized that John Woody Papworth was moved to embark on his great undertaking. He was not then thirty years of age. Born in 1820, in Marylebone, the eldest of the three children of John B. Papworth, architect to the King of Württemberg, he joined, while still a boy, his father in his profession. It is not to the purpose here to detail his life and career; but it must be said that he was recognized to have a wide reach in his calling, besides a liberal general culture. He was esteemed for his skill as an architectural draughtsman and a designer, an authority on classical and Egyptian as well as on western European architecture, eminent for his services also to the cause of architectural education and its early organization, a competent classical scholar, and versed in modern languages: he had even projected a Life of Julius Caesar.

In 1847, conceiving himself to have some surplus leisure, he began to collect material for the ordinary on 'sheets', upon which he seems to have pasted down slips containing the blazon of arms as he came across them. This preliminary work took some four or five years, a startlingly short time under the circumstances. The basis of the work, we are told in the preface, was the *General Armory* of John and John Bernard Burke, published in a third edition in that year. This is the converse of the ordinary: it is cast as an alphabetical list of surnames, to each of which is attached the coat of arms found here or there to have been borne for it. This was written out by Papworth entry by entry on slips of paper, which were then rearranged for use as the correlative ordinary and filed, while the work of collecting further material progressed.

The existing ordinaries that he had before him were those

known as Jenyns's, Cotgrave's, and Glover's. But he used them only to draw material from, and not as a framework or scheme ready devised that might have simplified his own work. He had not come across an ordinary earlier than any of those, one also known as a Jenyns's Ordinary. This dates from the mid-fourteenth century, and takes its name from a later possessor, William Jenyns, Lancaster Herald under Henry VII and Henry VIII. It is an entirely painted work in codex form with about 1,500 coats, and exists to-day in several manuscripts. The next survivor in date is Cotgrave's, also a fourteenth-century work, of some 600 coats, that Papworth rather inexplicably supposed to be an abridged form of the Jenyns first mentioned above. The Cotgrave is entirely in blazon, and has been transcribed and published by Sir Harris Nicolas in 1829. The later or second Jenyns, once the property of a Thomas Jenyns, but done, it is thought, for Queen Margaret of Anjou, is singular in being at once in blazon and in colour: the rows of painted shields are accompanied by the blazon in Anglo-French; it is of mid-fifteenth-century date, with about 1,600 entries; and several versions of it have come down. Glover's Ordinary was the work of that diligent and reliable armorist Robert Glover, Somerset Herald under Queen Elizabeth. It incorporates much of the material from its above-named predecessors, and has been long accessible in print, with additions, as in Edmondson's *Complete Body of Heraldry*, 1780, and in Berry's *Encyclopaedia Heraldica*, 1828. As may be supposed, there are numerous manuscript ordinaries in existence: almost every serious worker in the subject must have had occasion at one time or another to contrive for himself such an instrument of research.

Besides the above sources Papworth must have used the standard county histories, family histories, and similar works containing ostensibly authentic heraldry; and as stated in the introduction, 'heraldic works of repute and trustworthy other sources'.

Although all the labour of research, compilation, and filing was carried on privately and with but little assistance from others, it came to be known, and interested friends urged the great desirability of publication. They combined to procure further interest and the promise of subscribers; and in 1857 a prospectus of the venture was issued. As then conjectured the work was to consist of about 600 pages octavo; it was to appear in half-yearly parts of 48 pages for an annual subscription of one guinea. There was a rather involved scheme of issue that contemplated a sliding scale of both time and amount of subscription payable, according as the number of subscribers rose and fell, the optimum hoped for being 300 subscribers, who should procure each his copy for a total

payment of two guineas. But it was so ill contrived that, provided the number of subscribers should continue below 150, each was to receive a second copy of the work free; whereas if their number rose above that figure the extra copy was to cost them an extra guinea a head—a singularly unbusinesslike arrangement that should make it to the interest of those already enrolled to keep their numbers down. It is not surprising that in fact the number shrank, by 1862, to the disappointing but naturally to be expected figure of exactly 149.

By 1863 nine parts had been brought out at a charge of three subscriptions of a guinea; and the work was able to receive a notice among the first reviews in the then new *Herald and Genealogist*. So far 456 pages of the surmised 600 had been done, and yet the alphabet had advanced no further than Chevron; so it had to be explained to uneasy subscribers that 'four-fifths of the charges [of the heraldry] are comprised in the letters A to F', owing to the author's practice of herding together almost all heraldic fauna into two pens, labelled Beast and Bird.

Five more numbers were got out in the next six or seven years. And then John Papworth's health gave way, and he died, from a gangrene set up by the neglected injury to a foot, in 1870, but a few months older than fifty years, his recovery, it was thought, retarded by his sedulous application to the uncompleted sheets of the ordinary. It is a gloomy reflection that the copiousness of the labour shortened, if it did not positively embitter, the unfortunate compiler's latter end; and a melancholy commentary on the vanity of such efforts at publication that the author was not only prevented by them from making in the end his own use of their results, but was at the last left with no remuneration at all from what had been issued.

As may be read in the preface of the book as we have it, the subscription-list was thereupon closed, the completion of the publication being undertaken by a relation of the originator, A. W. Morant, a Fellow of this Society; and Wyatt Papworth, the brother, saw the work through the press. It was then believed that the 696 pages so far published represented three-fifths of the whole. The price was stabilized at three and a half guineas, with an option to subscribers to underwrite a second copy for another two guineas. In fact the finished work, which is dated on the title-page 1874, being published by T. Richards of Great Queen Street, ran to 1,125 and xxii pages octavo, printed in double columns, with preface, introduction, table of headings, and list of authorities, also list of subscribers and three title-pages for binding either in one or two volumes. As estimated by its author it

comprises 50,000 entries; and they have been verified more than once by computation. The number of separate references has been approximately estimated at nearly double that figure. The limited number of copies at first contemplated, 750, was apparently not exceeded. It was understood that the remainder after satisfying the subscribers were not to be sold for five years at less than double the subscription-price. The subscribers had responded well with an average of one and a half copies apiece, two of them putting in for as many as seven each, and several others for five and four; between them they took over 250 copies. The market-price presumably declined over the next twenty-five years: it was possible to buy a mint copy about 1900 for as little as fifty shillings. But afterwards the figure mounted rapidly: to-day the quotation varies between fourteen and seventeen guineas, and it is exceptional to hear of anything lower.

A new idea will often reach two minds at much the same time independently. Within a year of Papworth's writing his first index-slips there appeared in the *Archaeological Journal* an article from Weston Styleman Walford, Fellow of this Society, calling for a better Ordinary of Arms than then existed, and laying down the lines he thought it should take. His chief points were:

1. The sources to be drawn upon are seals, architecture, monuments, brasses, rolls of arms, glass, paintings, and others.
2. All arms before 1688 to be noted.
3. Badges and crests to be included.
4. The authority or source from which any coat was derived to be on no account omitted.
5. Exact particulars to be given of the position on a monument, etc., of coats, and especially their order among themselves.
6. Paintings on parchment [i.e. presumably rolls] are the best authority.
7. The co-operation of all with expert knowledge to be looked for.
8. The assistance of all 'provincial societies' to be invoked.
9. The Archaeological Institute is indicated as the right body to undertake the work.
10. The earlier attempts at an ordinary had been defective in never appending their source or authority.
11. Nothing of value was to be obtained from the writers of the sixteenth and seventeenth centuries, nor from the *Boke of St. Alban's* and Upton's *De Studio Militari*.

It is worth noting, too, that Walford called upon the Institute for a good history of heraldry, and a good treatise—neither of

which has even yet appeared. Presently Walford learnt of Papworth's undertaking and at once became one of the staunchest and most useful promoters of it in every way.

His article had appeared in 1848. Then in 1873 the *Herald and Genealogist* reviewed Part XV of the ordinary, the first undertaken after the author's death by his successor Morant. While giving it a somewhat chilly welcome the writer, presumably the editor of the magazine, J. G. Nicholls, took occasion to read both the deceased and the living workers a lesson on their shortcomings as he saw them. Besides deplored the obvious imperfection of including every infirm spelling of names, he censured the inclusion of coats that had been used unauthentically or for names known to be erroneous.

Walford and Nicholls may be taken as in the forefront of heraldic enlightenment in their day. It is astonishing that they both, and all others of the fraternity with them, so completely missed the great desideratum, hitherto unfulfilled, of an improved type of ordinary, the great contribution to such an instrument of reference that Papworth was the first to make. But Papworth had recognized it; and it is evidently fundamentally inherent in his project. He saw the prime necessity of exact order in the entries; and that is what no ordinary before then had ever even attempted. It is not difficult—it is indeed simple and obvious—to throw together arms of the same kind, coats of similar type or kindred pattern or related contents; it is not difficult to shuffle such groupings into some rather closer internal order. It is at that point that the real difficulty of this kind of ordinary begins. And it is there that all users of the ordinary should acclaim Papworth's great service to heraldic study. The problem in effect presented to him was to find a means of so organizing the exceedingly various compositions of armory with their indefinitely multifarious components that each individual example should have a logically appointed and rigorously ascertainable place in the scheme that could be unfailingly found and unassailably justified. The *Materia Heraldica* is doubtless of the simplest; but in the aggregate, in the almost infinite possible complexity of their combinations, the patterns of heraldry are unexpectedly heterogeneous.

The task then of a Papworth was as much a philosophic as a technical one: it was in fact to pass in review the whole field of heraldry, from the simplest coat to the most intricate, and devise some mode of classification that could readily extend to all possible types. It was that that he accomplished; and it was no small thing. Now that we see it done, and have for long been accustomed to it, it seems natural enough, inevitable almost, and there-

fore that it might once have seemed anything but simple hardly presents itself to the mind. It is as well to recall that it had never before then been essayed, nor as far as is known even thought of. It was no mean feat to have achieved so successfully at once a practically perfect method; it was, perhaps, a still greater achievement to have conceived its feasibility.

What Papworth's system of arranging coats does is to appoint one right place and one only for each and every sort of coat. And this has the valuable property of providing negative evidence. The importance of negative information, so often cardinal to any kind of reconnaissance or research, is apt to be overlooked or undervalued. It is not enough in general to be able to light upon the required coat if it is in fact entered in the book. It is essential to feel sure that, if it is not found, the failure is not due to the incompetence or the inattention of the searcher, but to the certainty that the required coat is not between the covers of the book at all, that it had not been met with by the compiler of the ordinary. That was a satisfaction not attainable by the user of any previous attempt at an ordinary. But it is part of the essence of the Papworthian scheme. He carried the rigorousness of a close alphabetical arrangement right through, even where the plan cannot be alphabetical in basis; and he thus conferred a certainty upon the subject that had been altogether wanting before.

All coats are first grouped under the main charge. The headings of these compose the first stage of classification; and they are in alphabetical order. The first sub-classification is also alphabetical: it is by the tincture of the field, *argent*, *azure*. . . . The second sub-classification is similarly by the tincture of the charge, *azure*, *gules* . . . on *argent*, and *argent*, *ermine* . . . upon *azure*; and so on. But the second stage of classification departs from the alphabetical: it is by the arrangement of charges. So also the third stage, which is by numbers of the main charge. Thus after one chevron alone has been fully scheduled in all its variants, it is followed by the section headed 'Chevron and in chief', and the sub-classification then returns to the alphabetical scheme with the names of the several charges that accompany the chevron in chief. Succeeding sections give 'Chevron and in base . . .'; 'Chevron between . . .', each being treated as the principal section for the chevron sole. The charged chevron then follows; and when all coats containing a single chevron with all its accompaniments have been dealt with, the scheme moves to two, then three, etc.

But although there is in principle only one place in the whole order for each coat, just as there is only one place for each word among the headings of a dictionary, and although there is no use

made of a multiple-entry system, yet by a liberal extension of plan any type of coat that might give rise to ambiguity is entered by all headings where it could reasonably be looked for. Thus certain coats of barry or of so many bars, or the like, or of crusilly, or of a definite number of crosslets, will be entered under both alternatives. It is sometimes hastily stated that Papworth's whole organization depends upon a rigid formula of blazon, and would be unworkable without it. But that is an inaccurately expressed view. The system of classification has nothing essentially to do with any one way of blazoning: it is perfectly possible to track down any required coat—or to ascertain its absence—with any manner of blazoning in mind. Papworth himself adopted the common formulas most current in his day, very wisely, without attaching any importance to hieratic attempts at precisan reform or preciousness of phrase; and it is true that in the main he applied them consistently and without capricious variation. But that was due to the natural requirement of decent uniformity. Any coat would still be just where it now is in the book, however irregular or self-conscious the blazon for it that might have been adopted.

The underlying principle is really simpler than the customary habits of blazon: it is based on the simple structure of coat-armour, and arises from the simplest way of regarding that. In the rather long and unavoidably elaborate directions for using the work set out in the introduction it is remarkable that the author himself nowhere states the principle directly. It is that the charges are to be considered in their degree of remoteness from the field or from the centre of it. A modification is sometimes required for anomalous cases. In spite of this essential simplicity the book is felt not to be an easy one to use. But that is inherent in the nature of the material to be treated, and no arrangement of it could have obviated difficulty altogether. It is a considerable testimony to the clarity of the work that given reasonable concentration a searcher without any great expertness in heraldic jargon can hunt down his quarry with certainty or, what is quite as important, assure himself that it is not recorded there.

It is certain that there are imperfections in the ordinary. The two most material were of course not noted by the *Herald and Genealogist* in its critique above mentioned. Much space is wasted in separating unessential variants of certain coats. This practice actually tends to defeat the purpose of the work. A coat burrely and merlets may have to be looked for in separate cells headed six, eight, ten, twelve . . . of those little fowls, with all the variants of tincture and even of number of stripes. The convenience of most intelligent consultants might be better served

by a single appropriate entry. More serious is the entire omission of coats that by all reasonable expectation should be certainly found. Those medieval rolls scheduled in the introduction purport to have been entered, presumably in full; yet it is demonstrable that many coats from them have been omitted—itself a testimony to the soundness of the method, even while exposing the weakness of its occasional application. For example, a coat, not famous perhaps, but exceedingly well known to most people at all versed in medieval heraldry—the plain vair of the Somerset Beauchamp—it is disconcerting to find no entry at all for the stark basic simplicity of this blue and white vair among all the variants 'de fantaisie' that are catalogued. Yet the coat is unequivocally recorded in no less than twelve rolls (among others) that are given by Papworth in his schedule on (unnumbered) page 2. This, the last, limb of the work, certainly, had to be left to the continuator Morant; and perhaps the sheet with the vair entries became mislaid. Some other reason must account for the lack of perhaps the most generally celebrated coat in all medi evality, Neville-Warwick 'the king-maker's' saltire with the tessellated label of blue and white; it is similarly unknown to the Burkes, father and son, in their works. That will explain its original omission by Papworth; but it is curious that he did not come across it elsewhere, or at least failed somehow to note it. Other users of the ordinary can doubtless supply similar instances of omission.

As for the deficiencies underlined by the earlier critics, the general lack of quoted source, and the uncritical inclusion of corrupt spellings, unreal names, and spurious coats: these are possibly due to a condition of experiment at the outset of the work. Papworth most probably had at first no definite project for the compass of the finished undertaking or consequently for any possibility of its use by others and its eventual publication. He began very likely in a tentative way and in a spirit of investigation only, with perhaps no clearer notion than to compile for his own ease a soundly arranged corpus of arms. Such a mood at the beginning will be intelligible and familiar to many. When he, or his friends for him, realized the prospective scope of the thing and its claim to be published, it was too late to retrace his steps and enter everywhere on the work done the source or authority, about whose soundness he himself would be, for his own purposes, perfectly satisfied. The categorical noting of sources, indispensable to-day, was less insistently stipulated then.

The inclusion of corrupt spellings may in some cases be held so little a fault that it is even advocated sometimes to-day as proper

to a full ordinary; so also, for analogous reasons, the retention of 'bogus' coats: they may both alike have given rise to actual user, bona fide as well as disingenuous, of the coats. For example, the arms shown on pages 338 and 339 of Papworth—a flock of gold merlets on blue—as for the name Bellendon, on the authority of a version of the Parliamentary Roll. It is quite possible that a family of that name may have accepted advice, in all innocence, from a trusted 'expert'—himself not necessarily venal or malicious—that those were the proper arms duly recorded for them, and in consequence actually taken them into use. If thereupon some later inquirer meets with them displayed so, he may well feel confused or cheated if his one trustworthy standby, the great ordinary, dumbly ignores the attribution. Other versions of the name from the same document are, it can be seen, 'Beltenden' and 'Ratendene', etc. The place, in Essex, is correctly spelt Rettendon, a form not given, as it happens, in any printed edition or in any other work referring to the roll. Those who have attempted the rectification of such names will know best that it is an undertaking in itself, and formidably lengthy; had it been a condition precedent to completion of the ordinary, this might never have appeared in print at all. Apart from some obvious cases that could give no useful addition to knowledge, it might in general be more expedient to retain some of these corruptions, for the very reason of their remoteness from type. But their complete restoration would have called for a fuller onomatological apparatus than was available in Papworth's day.

The case of 'spurious' coats further raises the probably insoluble problem of armorial authenticity. But until it should be settled it is evidently impossible to lay down any rule, that could not be grievously impugned, for excluding coats. According to one, a severe, school, the sole inexpugnable authority for armorial bearings is a grant issuing from a corporation of heralds acting under the Crown. According to the extreme, and no less severe, opposition, coats of just such origin are the very ones to postpone to those vouched for by ancient testimony and long user, anterior to any official dispensation. Various shades of moderate opinion vacillate between the two, and incline in unquiet alternation towards now one, now the other, anxious to be at peace with both. But to insist on either exclusively is to misconceive the function of this ordinary. In a word, its aim is to record all arms encountered that are identified with a name. It is not to the purpose to justify either the name or the authority for the arms annexed to it—still less to pronounce pontifically on the most vexed point of armorial jurisdiction. The sheer fact of use of an arms for a name is the

sole qualification for its inclusion in such a work; and it is of itself sufficient warranty against omission.

That a first attempt to produce a completely organized Ordinary of Arms should not be impeccable is only humanly to be expected; and it has not been sought above to exculpate the author so much as to account for the plainer deficiencies while acknowledging them. The plan, even where indifferently executed, is so admirably adapted to its end that it cannot be fairly be called upon to serve any other. The use commonly made of an heraldic ordinary is so exclusively one single one that it is generally overlooked that there can be many quite different uses for such a work, demanding as many different ways of casting the material.

Exactly for what purposes the early ordinarys were thrown together cannot ever now perhaps be certainly determined. It is significant that that form of catalogue preceded by long the alphabetical armory of names, nowadays more generally in request than the other. It is an obvious conclusion that the first compilers of the manuscript ordinarys merely wished to trace the name of the bearer for a coat they had, or might, come across without a name. If, as is likely, they were professionally concerned to compose arms for clients, and, as working heralds, then to superintend the grant conferring their design, they would be naturally glad of the help of an ordinary, to avoid trespassing too closely upon an arms already recorded as borne. This is a somewhat different use of the ordinary from the other, though it would be doubtless not less well served by the loose texture of the early ordinarys.

But the closely braced framework of Papworth makes it well-nigh useless for anything but the bare tracing of the bearer of an arms met with; and it should not be asked to do more. Alphabetical order, as someone has acutely said, is no order: it is the negation of order, and only an expedient that is convenient because all of us can grasp it, an evasion of some abstruser order. It is unerring in its guidance in Papworth; but for that very reason it entirely segregates most kinds of kindred types of arms. The completest form of ordinary is that referred to above as the multiple-entry sort: it would enter every bearing—not only the main one, with perhaps one sub-heading for the second bearing and nothing beyond that. Under that system every coat would be entered as many times as it had different charges incorporated in it. Such an ordinary has not yet appeared anywhere in print; though an example has been worked out and appended to a Roll of Arms presently to be published. From it a variety of information as to frequencies of charges can be got. But it is applicable

solely to relatively limited collections of arms, those of a short period or confined to a country; it is quite inappropriate to the field covered by Papworth, which extends throughout all heraldic time. For there is not sufficient relationship or cohesion between the extreme members of such a gathering of arms. It is not only that a Papworth constructed on those lines would be prohibitively costly and then unwieldy, but the information to be derived would convey no useful meaning.

The multiple-entry type of ordinary provides the completest way of co-ordinating every kind of resemblance between coats, and thus may be fruitful of fresh discoveries of relationship. But it is not the only one. The principle of the heraldic ordinary is comparable to commercial book-keeping: there is not just one kind and one only, of practice; there are not even several kinds, one only being 'the best'. Rather there is a relatively unlimited and indefinite choice open, the liberty of selecting the species that best suits the purpose; as with book-keeping it is possible so to arrange and order the data as to yield an analysis of any desired relations. Users of Papworth must often have been aware of the ponderous difficulty of trying to make complete collections of related types of any coat from its pages. As long as the variations are solely tinctural, the whole assembly is under the hand. But as soon as other kinds of difference come in, often less disturbing than a change of colour, the related coats may fly asunder to the farthest corners of the book. A coat of six roundels will be found in a single section in every variety of tincture-combination with its field; but if it should develop, on being differenced, into one of a bend between six roundels, without other changes, it will be severed from its archetype by over eight hundred pages. A coat like St. John or Clinton, with a chief alone or charged, that acquired the addition of three saltires in the field would be equally remote from its original in the book. Even the addition of a bordure or a chief to a coat will throw it far out of its first classification.

If investigations into such relations of coats as those should ever be wanted, an ordinary to assist them could be made; Papworth in its close adaptation to its one end of tracing names for coats does not well serve here. When they consult Papworth, the genealogist, the decorator, the historian, the family-inquirer, the journalist, the general reader, even some antiquaries, are not primarily interested in heraldry as such, but only in its results or its applications. The tracing of the name to be ascribed to a given coat, though often an important quest, and that most commonly undertaken, is not necessarily the most fruitful, the most scientific,

or the most illuminating. But an ordinary contrived for one range of inquiry cannot be comfortably diverted to another. Papworth is to be looked on as a simple, though admirably designed, tool for the general inquirer who wishes to make use of heraldry, rather than for the student of heraldry as a subject in and by itself, with its own character and development along lines peculiar to its own genius. Whatever view may be held of the elementary nature of the heraldic material, or its relative consequence to other studies, artistic, antiquarian, historical, it could not but be allowed that heraldry has one—and, it must be conceded, only one—work that with all its imperfections must be ranked not only as a scientifically constructed instrument but ranked high for its completeness and sufficiency for its task. It is not too much to claim that Papworth can take its place with the accepted works of reference of equivalent scale in other subjects.

It is right to recall, too, that nothing is to be found in heraldry elsewhere that is comparable to Papworth. Heraldic study in no other country has reached the pitch of producing a satisfactory ordinary; indeed the type of work is unknown, unused, and seemingly unwanted outside this country. Even France has not yet evolved an ordinary for her heraldry, so far as appears. The volumes put out by Renesse are apparently but an inversion of Rietstap's general European armorial alphabet of names, and accept his arbitrary limitations. There could perhaps be no more convincing proof of Papworth's excellence of organization than to undertake a search in Renesse: in Papworth it is possible to be certain if the required coat is not recorded, or to find it if it is.

It is not the least of Papworth's contributions to systematic work in heraldry that he first collected all those medieval English rolls of arms till then known, and dissected each, and indeed sometimes more than one version of each, into his own work. He is thus in some sort the founder of rolls study, and in that respect the forerunner of James Greenstreet and Charles Russell in their reference list of the rolls of 1881. Though he published no transcripts he evidently transcribed many manuscripts himself for the first time; and the schedule he prefixes to the ordinary can be counted the foundation of the later men's work. The rolls he used range from the Dering, called by him the *Acre Roll*, to the 'Rouen', T. Jenyns's Ordinary, and Glover's. Fortunately he considered their value outstanding enough to particularize each coat drawn from them with a reference to the respective roll of origin.

Papworth's ordinary has remained in active use for well over

half a century, and has not been superseded. But it is, in the natural course of things, growing out of date and insufficient. The far-sighted munificence of a late Fellow of this Society, Lieutenant-Colonel Croft Lyons, has made provision for a second edition of it, to be carried out on the general lines that Papworth conceived nearly a century ago.

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A Romanesque Drawing at Oxford

By F. WORMALD, F.S.A.

THE remarkable miniature of the Virgin and Child reproduced here (pl. 1) is found in a copy of St. Augustine's *Commentary on Psalms* ci-cl now in the Bodleian Library at Oxford.¹ It is drawn on the blank recto of the first folio of the text. The verso of the leaf has the opening words of the work set out in capitals with an elaborately decorated initial letter. The Virgin is seated on a throne whose arms end in dogs' heads, and the whole composition is framed by a mandorla. She holds the Infant Christ on her left knee and supports Him with her left hand. In her right hand is a long sceptre ending in a trefoil upon which a bird perches. The bottom of the sceptre has a curious indent where her fingers grasp it. This may be an allusion to the 'radix Jesse', since it slightly resembles a root. The sceptre would then have the double significance of the royal sceptre belonging to the Queen of Heaven and the 'Virga' which, like the 'radix', is a synonym of the Virgin. As Queen of Heaven she wears a heavily jewelled crown with a trefoil in front and knobs at the side. A long veil falls over her shoulders, jewelled at the edge. Underneath is a robe with long pointed sleeves. Her shoes are black decorated with red trefoils. The drawing of the figure is executed in red. Christ is drawn also in red, with a robe outlined in purple. His halo is in a green and yellow wash. The mandorla in which the figures are seated is composed of two intersecting circles. Both of these are decorated with concentric bands of colour. In the top circle, working outwards, the colours of these are as follows: purple, green, red, and yellow with green spots. In the bottom circle they are: green, purple, and red with green spots. The skilful use of the colours, which are either used in outline or wash, gives a very sumptuous effect which at the same time is not heavy like so many miniatures of the same period.

The most striking feature of the miniature is its quite extraordinary monumental quality. Much of this is due to the fact that the drawing is a very large one.² It measures 10·3×6·5 in. This

¹ MS. Bodley 269 (S.C. 1935), F. Madan and H. H. E. Craster, *A Summary Catalogue of Western MSS. in the Bodleian Library at Oxford*, ii, part 1, p. 123, date the MS. in the second half of the 12th century. This is certainly too late.

² A rather later English drawing has much the same monumentality. This is the figure of Christ in Majesty in British Museum Add. MS. 37517, f. 128b, which belongs to the third quarter of the 12th century, and was presumably executed at Christ Church, Canterbury.

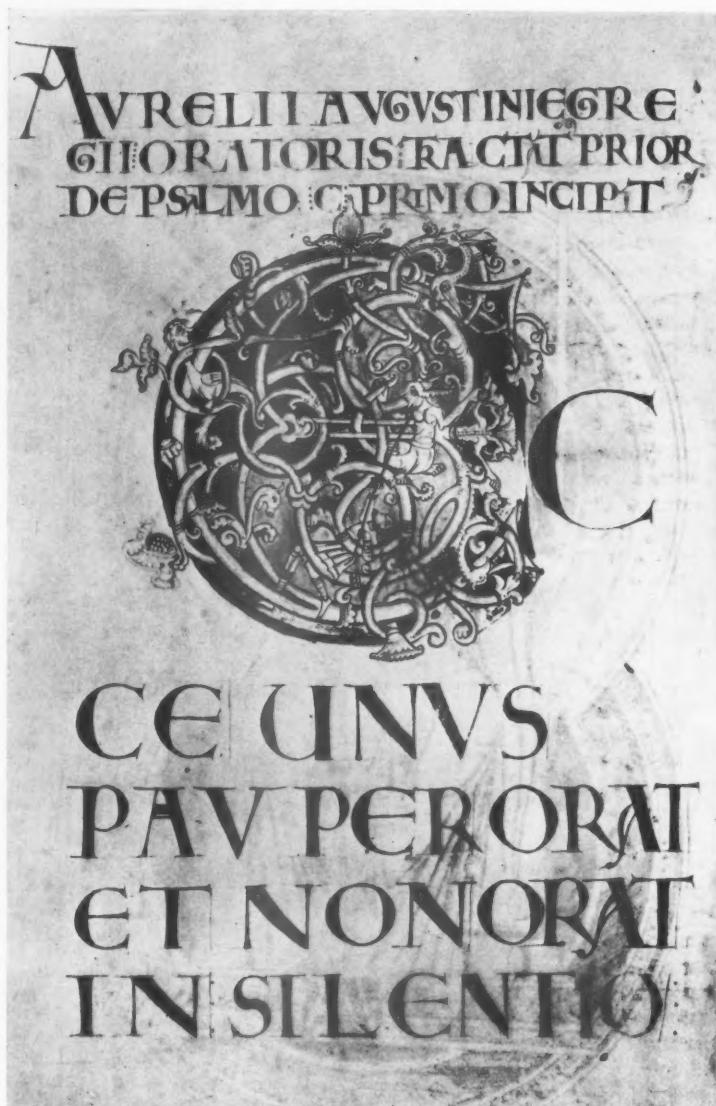
monumental effect is accentuated by the elongation of the figure with its heavy crown and stressed eyebrows. All this undoubtedly makes it one of the most imposing examples of English Romanesque art. Stylistically it is not easy to place the drawing in any particular group of twelfth-century English manuscripts. It will, therefore, be necessary to examine it in the light of the three main styles in use in the first half of the twelfth century. The first style comprises a number of manuscripts whose illuminations, and particularly their drawings, are derived from the outline drawings of the 'Winchester' school of the eleventh century. Some of these manuscripts come from Canterbury, but it is probable that other centres maintained these conservative methods.¹ The Canterbury manuscripts in this style appear to belong to the early years of the twelfth century. All of them, in spite of certain decorative modifications, are completely Anglo-Saxon in style, with fluttering draperies, ecstatic expressions and gestures, as well as a certain scratchiness of technique, which at once proclaims the influence of the 'Winchester' outline drawings. The second style is that connected with the manuscripts related to the Albani Psalter, now at Hildesheim, made at St. Albans between 1119 and 1146.² These manuscripts show a new influence at work which is certainly continental, and appears, in derivation at any rate, to be Byzantine. Their chief characteristics are heavy-featured faces, frequently drawn in profile; and, in the case of fully coloured miniatures, a strong, sumptuous colour scheme.

¹ British Museum, Cotton MS. Vitellius A. XII, a martyrology from St. Augustine's, Canterbury, see British Museum, *Schools of Illumination, Part II*, English, pl. 5e, and Arundel MS. 91, a *Passionale*, also from St. Augustine's, Canterbury, show this style particularly well. British Museum, Cotton MS. Caligula A. VII, f. 98, has also a miniature in the same style. A famous example, of course, is the magnificent St. Augustine, *De Civitate Dei*, in the Laurentian Library at Florence, MS. XII. 17, see *New Palaeographical Society*, Series I, pls. 138, 139.

² British Museum, Cotton MS. Titus D. XVI, Prudentius, *Psychomachia*, from St. Albans, see British Museum, *Schools of Illumination, Part II*, English, pl. I, a, b, and the drawings at the beginning of a Gospel-book from Bury St. Edmunds, see E. G. Millar, *English Illuminated MSS., X-XIII Century*, pl. 35, are dated early in the twelfth century. This is too early as the initials in these MSS. appear to be later. The Life of St. Edmund, from Bury St. Edmunds, now in New York, Pierpont Morgan Library, MS. 736, see E. G. Millar, *op. cit.*, pl. 36 as well as the pages of Biblical scenes in British Museum Add. MS. 37472, London, Victoria and Albert Museum MS. 661, New York, Pierpont Morgan Library MS. 521. For these leaves, see M. R. James, *The Twenty-fifth Volume of the Walpole Society* (1936-7), pp. 1-23, pls. I-viii. The Walsingham Bible, MS. 22, in the Chester Beatty Collection, see E. G. Millar, *The Library of A. Chester Beatty, A Descriptive Catalogue of the Western MSS.* i, pp. 85-8, pls. LXIV-LXVII, particularly the large initial I have figures in this style. The remainder of the miniatures in this MS. are less related to this group of MSS.



Oxford, Bodleian, MS. Bodley 269, f. iii recto



Oxford, Bodleian, MS. Bodley 269, f. iii verso

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A ROMANESQUE DRAWING AT OXFORD 19

The fluttering activity of the Anglo-Saxon style is not found here, and the general effect is one of sombre magnificence. Thirdly, there is the style which combines these two—the Anglo-Saxon and the Albani Psalter styles—into one definitely Romanesque English style. Both the characteristics of these two appear in the third style, but they have been modified by contact with each other. One of the best-known manuscripts whose illuminations are in this manner is the Shaftesbury Psalter in the British Museum.¹ There are, however, others. In these manuscripts the agitation of the Anglo-Saxon spirit has been composed by the influence of the Albani Psalter style, whose heaviness has in turn been lightened and animated by vigorous 'Winchester' drawing. The result is a dignified yet not heavy style, ready to pave the way for the great masterpieces of the second quarter of the twelfth century.² Their figures are less airy than the traditional 'Winchester' group, less ponderous than those of the Albani Psalter. They no longer appear as if either a breath of wind would blow them away, or a hurricane would not move them. Into which of these three groups of twelfth-century manuscripts can we put the Oxford drawing? It has many characteristics derived from Anglo-Saxon drawings. The head of the Christ in particular recalls such drawings as the head of the archbishop, probably St. Dunstan, in the miniature at the beginning of the tract known as the *Regularis Concordia* in Cotton MS. Tiberius A. III, of about the middle of the eleventh century.³ The face of the Virgin with its heavy eyebrows, long nose, and small mouth with its corners drawn down, also has parallels in miniatures of the 'Winchester' style.⁴ Perhaps the most striking archaisms are the dogs' heads on the arms of the throne. These magnificent creatures are stylized in a manner which makes them curiously similar to much

¹ British Museum, Lansdowne MS. 383, see E. G. Millar, *English Illuminated MSS., X-XIII Century*, pl. 32, 33. It has close relatives in Hereford Cathedral MS. O.V.II, *Sermons of St. John Chrysostom*, and Oxford, Bodleian, MS. Auct. F.VI. 5 (S.C. 1856), Boethius, *De Consolacione Philosophiae*, see Mary Ann Farley and F. Wormald, 'Three related English Romanesque MSS.' in *The Art Bulletin*, xxii, 157-61. The iconography of Lansdowne MS. 383 has affinities with that of the Albani Psalter.

² e.g. The Bury St. Edmunds Bible, MS. 2, in Corpus Christi College, Cambridge, and the Lambeth Bible, MS. 3, in the Lambeth Palace Library, see E. G. Millar, *op. cit.*, pls. 37-41. For the Lambeth Bible see also E. G. Millar, *Les Principaux Manuscrits à Peintures du Lambeth Palace, Extrait du Bulletin de 1924 de la Société française de reproductions de MSS. à peintures*, pp. 15-31, and pls. II-XII.

³ f. 26, see *British Museum Quarterly*, ix, pl. xxxv.

⁴ Cf. an 11th-century miniature of St. Jerome in Corpus Christi College, Cambridge, MS. 389, f. 1b.

earlier work.¹ This similarity must, I think, be a pure accident, since medieval miniaturists do not usually pick on a small archaic detail to introduce into their work.

There are, however, a number of quite definitely twelfth-century features in this drawing. The meander border, for instance, is not found in earlier work in England, though a version of it appears early in the twelfth-century paintings at Hardham church, in Sussex. What is even more striking than any detail is the manner in which the composition is reduced to its geometric shape. This is made clear when attention is drawn to the way in which the heart-shaped pattern of the knees and legs is balanced by the tapering pattern of the top of the figure. The folds, too, of the dress and veil are also typically of the twelfth century. They no longer wildly flutter in the manner of the 'Winchester' drawings. At the same time, they are not like the folds of the Albani Psalter and its allies, which cling closely to the figure as if saturated with water. I do not recollect having seen a mandorla of this kind in English manuscripts of an earlier date. Similar ones, are, however, found in continental, particularly Ottonian, manuscripts of the tenth and eleventh centuries, and, in the present case, it must be assumed to be a contribution from Ottonian illumination.²

From this it appears, then, that this drawing approximates most closely to the third style of English illumination of the first half of the twelfth century, combining traditional 'Winchester' elements with continental ones. Unlike the Shaftesbury Psalter, however, which has a bias towards the Albani Psalter style, it has a good deal in common with the traditional English style. It thus represents the style in which both English and continental elements are fused. In the present state of our knowledge of English twelfth-century illumination it cannot be said precisely when this fusion took place. From what evidence there is it does not appear to have happened much before the early part of the second quarter of the twelfth century. In this case it will be wise, therefore, to date this drawing in this period, i.e. the second quarter of the twelfth century. This date is supported by the ornament of the finely decorated initial (pl. II) on the verso of the leaf on which this drawing is found.³ The ornament of this initial is composed of fleshy stalks, with small leaves, occasionally ending in a monster's head, and is entirely of a twelfth-century

¹ Cf. Lindisfarne Gospels, see E. G. Millar, *The Lindisfarne Gospels*, pl. xxxviiiic (f. 131b).

² See A. Goldschmidt, *German Illumination*, ii (Ottonian Period), pls. 14, 30, 63, 91, 92.

³ f. III verso.

type. There is nothing of the rich 'Winchester' acanthus found in some manuscripts even as late as the middle of the twelfth century.¹ The climbing monsters and the man with a spear in his hand are also part of the general vocabulary of this style. The colouring, too, is typical of manuscripts of this period and is composed of panels of blue, green, yellow, and purple. Both drawing and initial can, therefore, be described as English work of the second quarter of the twelfth century.

Unfortunately the provenance of the manuscript cannot be determined, and the press-mark 'B.1111' added later at the top of the first leaf of the text has defied identification. Mr. Neil Ker, of Magdalen College, Oxford, has kindly written to me that 'the script, the broad format and purple initials suggest the West of England'. From the study of the illumination it is not possible to go even as far as that. However, the main reason for publishing this drawing is the hope that information can be given on this very point, and to make known what should be acclaimed as one of the finest English twelfth-century drawings in existence.

¹ See Oxford, Bodleian, MS. Bodley 717 (S.C. 2631) reproduced in *New Palaeographical Society*, Series II, pls. 191, 192.

Some Fresh Aspects of the Prehistoric Metallurgy of Copper

By H. H. COGHLAN, F.S.A., A.M.I.M.E.

THE work of the French mission under Ghirshman, at Tepe Sialk near Kashan, on the Iranian plateau,¹ has now given us a picture of the use of copper from the earliest times up to 3000 B.C., when the copper industry became firmly established. The present paper is an attempt to trace the development of the metallurgy of prehistoric copper in the light of the new evidence which is now available.

It is now generally accepted that the first metal to be found on all prehistoric copper sites, at the earliest time, is native copper. It is possible that small pieces of gold as well as copper may have been used for ornaments at a very early date, but we are not concerned with gold in the present paper. Native copper was very widely distributed throughout the Old World, and although it is not so bright in colour as gold, any lumps which had been scratched or rubbed would have shown a bright copper colour, and thus attracted the attention of primitive man. In copper-mining districts copper is found in veins, or lodes, in the geologically old rocks, and at the top of such veins deposits of native copper are often found. The conditions under which the native metal was deposited are complex, and even now may not be completely understood. According to Weed² native copper, when mingled with the oxides and carbonates, is a product of the weathering and decomposition of sulphide ores, and is a surface phenomenon.

Evidence is not lacking that the first objects to be made of native copper were ornamental beads, and a very early example may be cited from the Badarian culture in Egypt. In a Badarian grave Brunton³ found a few beads made from flat strips of copper rolled to form a hollow bead. In the prehistoric levels at Tall Chagar Bazar a bead of very pure copper was found, and as this bead was found with early Tall Halaf associations it must be ranked with the earliest copper objects so far discovered. Having once made beads of native copper, it would not have been long before men discovered that they could make other useful things from what they no doubt regarded as the new sort of stone.

¹ Ghirshman, *Fouilles de Sialk*, vol. i, Paris, 1938.

² Weed, *The Copper Mines of the World*, 1907, p. 23.

³ Brunton and Caton-Thompson, *Badarian Civilization*, pl. L. 86, w3.

In the Amratian, or first predynastic period of Egypt, Petrie¹ records a number of smaller copper objects such as awls, pins, and the like. All such objects were made from hammered native copper, in the case of these very old and small objects suitable pieces of native copper were worked in the most simple way by means of hammering the metal cold. As in general native copper is not sufficiently malleable to have its shape much changed by means of cold hammering, there was an important improvement in technique when someone made the discovery that the copper could be rendered much more malleable and easy to shape if it was heated in an open fire before being worked.

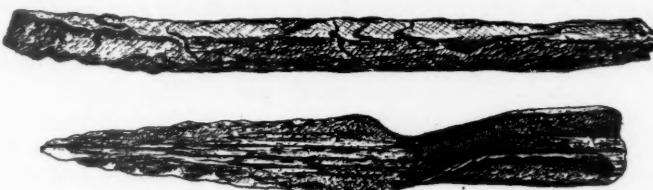


FIG. 1. Copper Spear-head (§) and Chisel (¶) in the Newbury Museum

From this point prehistoric man was able to fashion his implements using larger lumps of native copper, but he was still limited to the simplest forms and sections, such as awls, chisels, fish-hooks, etc.

Such simple objects of hammered native copper are to be found on most early Middle Eastern sites, and so it seems likely that the practice of making such simple objects in the way described was developed independently at a number of places where suitable deposits of native copper were to be found, either among the rocks, or as alluvial deposits in the gravel beds, or the terraces of small streams. In the Borough of Newbury Museum there are two very good examples of primitive hammered native copper work, one of these is a copper spear-head found near Toronto, Canada, and the other a chisel from the Copper River (fig. 1). We have now to consider how and when further advances were made. So far as we have described the working of copper, the metal was simply treated as a sort of malleable stone. The following points must now be considered:

- (a) When did early man discover that his native copper could be transformed by the aid of fire, that is melted and cast?
- (b) At what period was the art of smelting copper from the ores discovered?

¹ Petrie, *Tools and Weapons*, pl. LXV. 102-9.

- (c) Did the knowledge of melting and casting come before that of smelting?
- (d) What was the part which the furnace played in the development of metallurgy?

The first difficulty which confronts us is that of distinguishing native from smelted copper: this is not usually an easy matter because the native copper has, in many cases, the properties of the smelted metal. Native copper may be quite as pure as smelted copper and, on the other hand, it may be considerably less pure. There are certain cases, for example, with a large percentage of gold and silver, which would indicate a native origin for the metal, and when a large percentage of nickel is present a smelted copper may be assumed. Naturally in such cases an analysis will show with which class of metal we are dealing, also if the native copper has not been melted and cast, examination under the microscope will separate smelted from native metals. Unfortunately the analyses of early copper which have been published show that, in the great majority of cases, the impurities present in the copper do not definitely permit us to say with which sort of metal we are dealing, and since very few micro-examinations of the earliest copper have been published, we must look at the problem from another angle. In order to do this we must consider the archaeological background of metallurgy, since this is the only way by which the early copper finds can be dated.

Hawkes¹ has recently pointed out that the early pottery of the Middle East may be divided into two important classes, the plain and painted wares. In general, in Asia Minor and Egypt, we find the earliest pottery is of the plain unpainted class. In the painted group most of the early pottery extending from Syria to Iran, including Mesopotamia, have simple painted designs, usually the painting is done directly on to the surface of the pot, but sometimes a slip is used. Within this main group of painted pottery there seem to be two distinct traditions, and this applies as far back as we can trace either of them. One tradition is the culture known as Tall Halaf. The Tall Halaf area roughly extends from the Mediterranean coast, along the foot-hills of the 'Fertile Crescent' to the western slopes of the Zagros range. Red and black on a pale ground is the usual arrangement of painting for the Tall Halaf group.

The other tradition, with designs painted in black on a pale, or sometimes even white, ground, is the ware called Susa or Al 'Ubaid: this tradition is found on the Iranian plateau and in lower Mesopotamia. A better and more general name for this

¹ Hawkes, *Prehistoric Foundations of Europe*, London, 1940, pp. 75, 77.

tradition might be, as first suggested by Frankfort, Highland ware, because it can now be shown that its early development took place on the Iranian uplands. The Highland ware was first discovered at Susa, an ancient site which is situated near the head of the Persian Gulf. Numerous examples of Highland ware were uncovered in the two lowest levels, I and II at Susa, but it was also found that there was a gap or interval between the two periods. In a more recent excavation of the site remains belonging to this interval have been found; these are ascribed to an intermediate period with two sub-phases, *a* and *b*. Before this, however, at the mound of Tepe Musiyan in the same district, similar pottery was found. This pottery was thought to be later than that of Susa I, and was called style I *bis*. However, it now appears that the Susa I *bis* ware is the older, since the excavations carried out by Ghirshman in 1931-3, at the mound of Tepe Giyan, near Nehavend,¹ have revealed pottery of Susa I *bis* style stratified below wares of the Susa I type.

We now come to the important site of Tepe Sialk, near Kashan.² Ghirshman also excavated the two mounds of Sialk, and he divided the succession into six periods. In Sialk IV he found pottery resembling the second or (*b*) phase of the intermediate period at Susa. In this Sialk IV level he also found wares like those of Jemdet Nasr, and things like those discovered in the royal tombs at Ur. Ghirshman therefore places Sialk IV in the centuries immediately preceding 3000 B.C., that is to say, contemporary with the first two Egyptian dynasties. Beneath level IV was the long series of period III, which Ghirshman divided into seven sub-periods. The pottery of III, 6 and III, 7 resembled that of Susa I; sub-periods III, 5 to III, 1 yielded wares like those of Susa I *bis*, and the earlier ware of Al 'Ubaid. In the north mound still earlier layers were found which were divided into periods I and II. Period II is divided into three sub-phases, while the oldest period of the site, period I, is divided into five sub-phases. The oldest copper object attested at Sialk is a hammered copper awl of circular section from period I, 3 (fig. no. 2, 56).

We must now consider which of the two main cultures, the Tall Halaf or the Highland, was the first to introduce what we may call a true metallurgy, and the first to cast tools and weapons of copper. The people of the Tall Halaf culture were within easy reach of a plentiful supply of copper. Around Diarbekr, in the upper basin of the Tigris, numerous excavations and large accumulations of mining refuse mark the sites of an important copper

¹ Contenau and Ghirshman, *Fouilles du Tepe Giyan*, Paris, 1935.

² Ghirshman, *Fouilles de Sialk*, vol. i, Paris, 1938.

industry of a remote period,¹ while at Argana, in the same region, an important mine of native copper was being worked until quite recently. With such a good supply of copper within easy reach one would expect the Tall Halaf people to lead in the develop-

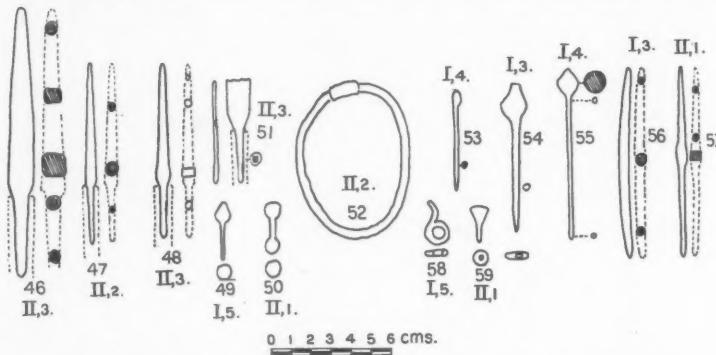


FIG. 2. Copper objects from Tepe Sialk, periods I and II (after Ghirshman, *Fouilles de Sialk*)

ment of metallurgy, yet copper objects from the lower levels of Tall Halaf sites which have been excavated so far are very scarce. At Tall Halaf itself, in the painted pottery layer, there are only small remains of copper objects, and their nature is beyond recognition.² At Tall Chagar Bazar, in the early Tall Halaf period, Mallowan³ found a bead of very pure copper: this was the only metal object recovered from the prehistoric levels. At Arpachiyah, near Nineveh, Mallowan⁴ found a flat axe or chisel of cast copper; however, the associations, and the fact that the axe was found in level 4, indicate a late period for this find. At Nineveh the first copper object, a pin, belongs to Ninevite III,⁵ and this may probably be equated to the earlier part of the Uruk period in Sumer.

It is true that not many sites with true Tall Halaf culture have as yet been excavated, but these sites have been worked under modern conditions and with great care, yet the yield of copper from the earliest levels is extraordinarily small; and on the evidence available it seems fairly certain that the Tall Halaf people were not workers in metal to any great extent, and that the great advance in, or rather to, metallurgy caused by the discovery of

¹ Gowland, 'The Metals in Antiquity', *J.R.A.I.* 1912, p. 245.

² Oppenheim, *Tall Halaf*, London.

³ Mallowan, *Iraq*, iii, 1936, p. 11.

⁴ *Id.*, *Iraq*, ii, 1935, p. 103.

⁵ Childe, *New Light on the Most Ancient East*, 1935, p. 259.

how to melt and cast copper cannot be ascribed to them. For further evidence we must then turn to the Highland culture, and in particular to the site of Tepe Sialk. Before considering the evidence from Sialk it may be well to review what is required to enable copper to be either melted or smelted. To melt copper in any form, whether the copper is of native origin or has been smelted from an ore, requires the high temperature of 1085°C . Such a temperature exceeds that which can be obtained in any open fire, hence some kind of furnace with a regulated draught is necessary. To smelt copper from malachite or other carbonate ore requires less heat, not more than about 700 to 800°C ., and, as the writer showed in some experiments on copper,¹ this heat can be obtained in an open charcoal fire. If, however, air has access to the ore during the smelting operation, the surface of the latter becomes oxidized and reduction will not take place. The author's experiments showed that in order to smelt a carbonate ore, such as malachite, under primitive conditions and using charcoal as fuel in a reasonable size of open fire, it was necessary to protect the ore in an almost closed chamber, or in other words, some sort of furnace was required.

Before the evidence from Sialk became available, the writer inclined towards the view that the smelting of copper preceded melting. This appeared likely since there was no evidence of melted native copper before the period at which smelted copper could reasonably be placed, and it seemed a more natural development that the low-temperature smelting furnace should have come first. The discoveries at Tepe Sialk rather tend to reverse this sequence, as we shall now endeavour to show.

In the northern mound at Sialk we have periods I and II containing deep deposits that precede those of Susa I *bis*. In the earliest, period I, we find amongst other wares pottery with black designs on a light, sometimes white, ground; the colour is dark and dirty in the lower levels of the period. A prune-red ware was also found. Ghirshman² considers that such colours were due to the pots having been baked in a reducing atmosphere, and believes that they were baked in the ashes of an open fire (fig. 3, no. 1). At the beginning of period I, 3 the potter seems to have improved his hearth, he dug a hole in the ground and thus conserved heat by radiation from the sides, he partly covered the mass of fuel with earth and so limited its volume; the flame is thus regulated, but it remains reducing. Under such conditions of baking the ware showed irregular stains, due to differences in the

¹ Coghlan, 'Some Experiments on the Origin of Early Copper', *Man*, July 1939.

² Ghirshman, *Fouilles de Sialk*, vol. i, Paris, 1938, pp. 38, 40.

quality of the flame. One of these hearths with the sides baked was uncovered at +1 m. 60 in the middle of period I, 3 (fig. 3, no. 2). At the end of period I, that is Period I, 4-5, the conditions of baking became better, and we notice the progressive disappearance of the irregular stains on the red ware. The rather fine

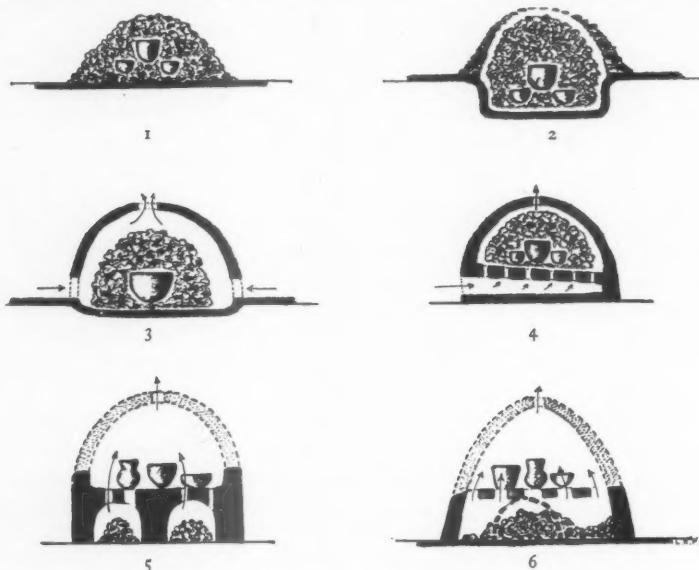


FIG. 3. Series of pottery furnaces (after Ghirshman)

red ware was baked in an oxidizing flame, and the furnace was established. The dome was of earth with draught-holes in the lower part, and one or more openings in the upper part; the draught regulation was still very primitive. A reconstruction of this type is shown in fig. 3, no. 3.

In period II all the pottery belongs to one group of a finer red ware, and the baking is carried out in a definitely constituted furnace, but during a certain time the faults in the regulation of the fire are still felt as in the last sub-strata of Period I. The desire of the potter was always to increase the temperature of his furnace, and to that end he continued to regulate the draught. The end of period II and the beginning of period III show us that the paste is better baked; in the earliest sub-strata of III there is a marked improvement in the ware, and due to the use of the true pottery kiln the baking of the small pots becomes perfect. A kiln in which we see the realization of the need to have a power-

ful and controllable draught was discovered at 1 m. 26 of period III. 1 (fig. 3, no. 4). This type of kiln probably originated at the end of period II, and comprised a domed baking and fuel chamber of clay with a vent-hole at the top. The pots and fuel rested on a perforated floor of baked clay, and a large air space was left under the perforated floor as in a modern grate. The fuel and pots were placed in the furnace through an opening half-way up the side of the dome; when the furnace was fired this opening would have been closed by a baked clay door, luted up with soft clay.

The next stage in the development of the furnace must have marked the introduction of the reverberatory type, in which the fuel is burnt in a separate part of the furnace, flame and hot gases only coming into contact with the pottery. This stage was probably due to the need to bake larger pots and also to bake a larger number at a time: the quantity of the fuel becoming greater it was no longer practicable to mix the pots with the fuel. The development from the period III, 1 type of furnace (fig. 3, no. 4) would have been quite simple. It was only necessary to raise the dividing floor of the furnace sufficiently to allow of the fuel being put under the floor instead of over it, and at the same time to allow space for the draught. The reverberatory furnace may approximately be dated to the middle of period III or the beginning of period IV. Ghirshman gives a reconstruction (fig. 3, no. 5) based on a furnace of this type which was found at Susa.¹ Next in chronological order would come the larger furnace, of the same type as no. 5, of which a good example was found at Khafaje,² illustrated diagrammatically in fig. 3, no. 6. Such large furnaces were most likely in use after the end of period IV.

We now have to examine how this furnace series fits in with the finds of copper objects at Sialk. These were briefly as follows:

Period I. The oldest copper object of period I comes from sub-stratum 3, and is a hammered awl of circular section (fig. 2, 56). Two little balls and another awl also come from the same level. In sub-stratum 4 a biconical headed pin was found (fig. 2, 55), and a needle with forged eye (fig. 2, 53). A spiral (fig. 2, 58) and a fragment of a biconical headed pin belong to the latest sub-phase, 5. No trace of metal was found in the first two sub-strata of period I, and the copper of this period is not cast but is all hammered metal. In general one may say of period I that the rare, small objects of copper indicate a period when man hardly knew of the malleability of this metal.

¹ M. de Mecquenem, *Mémoires Del. en Perse*, xxv, fig. 42.

² Oriental Inst. Communications, No. 13, *Tell Asmar and Khafaje*, fig. 31.

Period II. One cannot attribute any marked development of the metal industry to this period. Small copper objects become more numerous than they were in the preceding period; copper awls and points begin to replace those of bone. The technique remains unchanged, and all copper work is produced by simple hammering.

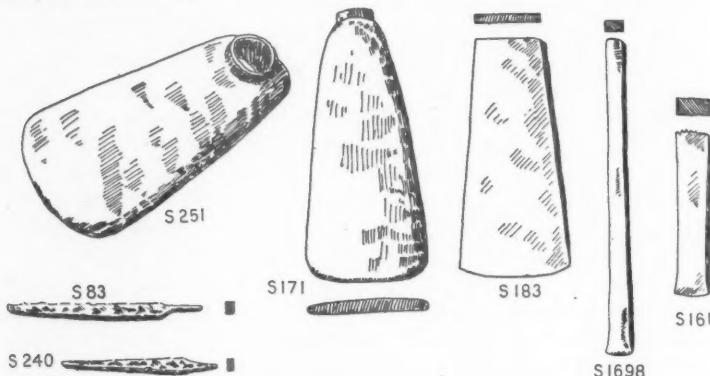


FIG. 4. Metal objects from Tepe Sialk, periods I to III
(after Ghirshman, *Fouilles de Sialk*)

Period III. This period marks a true progress in the metal industry. The copper almost always remains pure, except in the case of impurities which have come from the ore employed. The copper is heated and hammered at the beginning, but after sub-stratum 4 mould casting comes in. Sub-stratum 4 is an important stage: here we find the big and heavy adze (fig. 4, S 251), cast in a univalve mould, and with a flanged hole. In sub-stratum 5 the variety of arms and tools becomes richer, and the first flat axe, also cast in an open mould, appears here (fig. 4, S 171).

Period IV. Copper arms and tools are numerous in this period, but we are still in a pure copper culture. The working technique is limited to casting the copper in open moulds, although the cire-perdu process may have been employed to cast some of the ornamental headed pins. Such a process would have been possible if the technique of heating the mould red-hot before pouring in the metal had been discovered. It would also depend on whether certain elements were present in the copper to act as de-oxidizing agents.

It will be observed that all through periods I and II we only find simple objects of hammered copper. Casting was unknown,

and all objects must have been made by hammering small pieces of native copper. The furnaces covering these two periods (fig. 3, nos. 1-3) are, as we should expect, of simple type without regulated draught, and they would certainly not have been capable of generating the heat necessary to melt copper. When we come to period III, kiln design has much improved, and we find controlled draught furnaces in use which could have melted copper (fig. 3, nos. 4 and 5). In fact only 1 metre above the no. 4 type of kiln the first example of melted and cast copper is found. This is the heavy adze (fig. 4, S 251). That furnaces such as nos. 4 and 5 could have melted copper is clear from the fact that we have evidence of pottery at Susa and Gawra¹ which was baked under temperatures ranging from 1,000 to 1,200° C.

How the discovery of melting and casting was made we can only conjecture. It is possible that the potter, while arranging the pots in the baking chamber of his kiln, accidentally dropped a pin, or other object, of hammered native copper into the kiln. Since copper was scarce and valuable, the potter would have keenly felt the loss of his pin, and searched for it when baking was over and the furnace cooled down. Instead of his pin he found a shapeless splash of copper adhering to the bottom of the kiln. He would probably have understood that it was the action of heat which had changed the shape of the copper, and out of curiosity he may have put in some small unworked pieces of native copper during his next firing, and seen the phenomenon repeated. Moreover, he would have noticed, at any rate after two or three experiments, that the melted copper filled and took up the form of certain irregularities in the bottom of the kiln. This would have suggested to him that if he made similar depressions in a clay slab he could cause the copper to take up any simple form he wished, and the shaping would have been achieved without the very laborious process of cutting and hammering which he had always seen used by copper workers up to that time. So the great metallurgical advance to the casting of copper was made. It is interesting to note that the time during which hammered copper alone was used appears to have been much longer than was formerly believed, since the Badarian civilization is separated from period III at Tepe Sialk by some 1,500 years.

No doubt it was soon found that the method of melting lumps of native copper directly into shallow clay moulds placed in the pottery kiln was both cumbersome and wasteful, and the next stage must have been the evolution of some form of crucible. The first

¹ Speiser, 'Excavations at Tepe Gawra', *Annual American Schools of Oriental Research*, ix, 1927-8, p. 50.

crucible would simply have been a crude saucer or ladle, probably with a hole or socket into which a green stick could be thrust to act as a handle. In this ladle they could melt the copper and pour



FIG. 5. Prehistoric crucibles (by courtesy of the R. Anthropol. Inst.)

the required amount of molten metal into the clay or stone mould which was now kept outside the furnace. Later still the copper furnace would have become specialized, and separate furnaces for pottery and metal would have come into use. The various stages in the process of casting must have taken some time to discover. Unfortunately no crucibles or moulds for casting were discovered at Sialk, although they must have existed. On the other hand, such things have been found on various sites in central Europe and the Middle East. They are generally to be dated to a much later period than that with which we are dealing at Sialk, but when the same state of civilization had been reached. An early example of crucible comes from Thermi in Lesbos, where one was found in the lowest layer, and a better-preserved example comes from the third city. Other examples of crucibles are given in fig. 5.

Since malachite and other carbonate ores of copper can be smelted at a relatively low temperature, 700 to 800° C., it may be argued that smelting could perfectly well have preceded melting of native copper. The writer¹ has pointed out that it would not have been possible to make the discovery of how to smelt copper ore in an open pottery fire of the type shown by fig. 3, no. 1. If, however, a lump of malachite, or some malachite which had been ground to a powder, accidentally got into a kiln

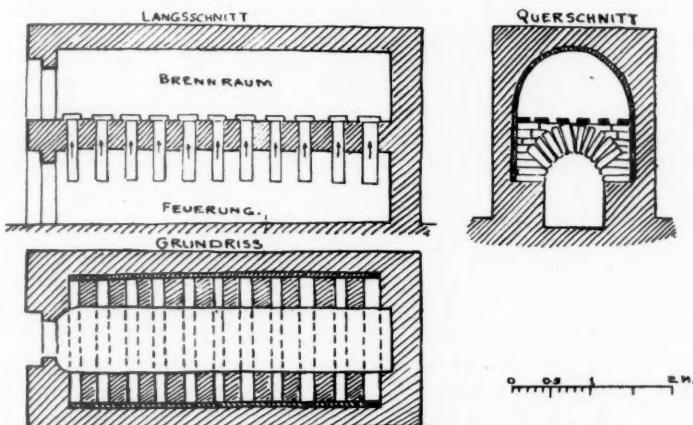


FIG. 6. Reconstruction of archaic furnace, Uruk (after Haller)

of either type 2 or 3, there would be every chance of reduction taking place. However, we must remember that both these kilns belong to period I, and that during the whole of periods I and II we only find simple hammered copper, so that kilns 2 and 3 may be ruled out as a source of smelted copper. After period II the evidence of the pottery shows that the potter was baking his wares under oxidizing conditions in the kiln, and such conditions would be against the accidental discovery of smelting. It thus seems more probable that the smelting of the carbonate ores did not come into use until the supply of native metal was becoming scarce, or until the introduction of the large type of reverberatory furnace, in which by control of the gases in the outlet flue the baking chamber conditions could be made either reducing, or oxidizing, at will. The very large archaic furnace discovered at Uruk² (fig. 6) would have fulfilled these conditions. Also after con-

¹ Coghlan, 'Some Experiments on the Origin of Early Copper', *Man*, July 1939.

² Abhandlungen Akad. Wissenschaft. Berlin, *Uruk, 8th report*, 1936, p. 7, Tafel 27.

sideration of the evidence from other sites it would seem that we must put the discovery of smelting forward to just before 3000 B.C., and this is of course long after melted and cast copper appears at Sialk. Such a date for the arrival of smelting fits in very well with the rapid expansion of metallurgy which may be observed all over Mesopotamia and the Middle East at, or a little before, 3000 B.C.

This expansion would be well accounted for by the discovery of smelting, which provided a great new source on which to draw for the production of copper.

THE TRANSITION TO BRONZE

Although much has been written on the subject of the passage, or transition, to bronze, the actual way in which bronze was discovered is still not clear. Before discussing bronze it may be well to state what is meant by the term. In the modern sense of the word bronze is a copper-tin alloy, which may vary from a 'mild bronze' containing 8 per cent. of tin up to the speculum and bell metals, which contain up to 33 per cent. of tin. The most widely used of the modern bronzes is 'gun metal' containing approximately 10 per cent. of tin. It is interesting to notice that the prehistoric metallurgist also aimed at a standard mixture containing 10 per cent. of tin, although naturally the early bronzes show rather wide variations in the percentage of tin which they contain; but even so the tin content range is usually between 5 and 15 per cent.

As the technical advantages of bronze are not always fully realized the following notes may be of interest. Compared to copper of more or less pure composition, bronze has the great advantage in that it is a most suitable metal for casting. Copper is a bad metal to cast in a closed mould, because the tendency to absorb gases leads to the formation of blow-holes and gives a porous casting, while the addition of tin to the copper checks the absorption of oxygen and other gases. The harmful elements in the making of sound castings of copper are mainly sulphur and oxygen: small amounts of sulphur are enough to spoil the work, and the liquid copper while being poured also takes up oxygen from the atmosphere. Small quantities of tin or arsenic, even down to 1 per cent.,¹ will enable sound closed mould castings to be made, the tin or arsenic acting as de-oxidizing agents and absorbing the oxygen. Hence while it was possible to cast copper in closed moulds from a poor copper-tin alloy, which could not be classed as bronze, casting in closed moulds did not become an important

¹ Witter, *Die älteste Erzgewinnung im nordisch-germanischen Lebenskreis*, Leipzig, 1938, vol. i, p. 40.

industry until it was discovered how to make an intentional copper-tin alloy containing more than 2 to 3 per cent. of tin. When this knowledge had been obtained, any desired shape of tool or weapon could be cast at will. There are other metals which if alloyed with copper render the resultant metal suitable for casting—lead, zinc, and arsenic for example. However, quite small proportions of lead would make the metal soft, and zinc in anything over about 3 per cent. would make the metal brittle when hammered to harden it for implemental use.

The use of arsenical copper was a special case, and without connexion with the use and development of bronze. A point which may be noticed in passing is that the addition of tin to copper lowers the melting-point. This is not of very much importance, as with normal proportions of copper and tin the reduction in the melting-point is not very marked. Thus pure copper melts at $1,085^{\circ}\text{ C.}$, while a 10 per cent. copper-tin alloy has the melting-point reduced to approximately $1,000^{\circ}\text{ C.}$

The physical advantages of bronze are also very marked, the strength and hardness being much improved. The average tenacity of cast copper is 10 tons per square inch. The addition of 10 per cent. of tin to the copper will bring the tenacity 'as cast' up to about 15 tons per square inch. More important than tenacity to the early metallurgist was the hardness of his metal, and here again bronze has the advantage. Copper as cast, with an initial hardness of Brinell 80, may have its hardness increased to between 120 and 130 by means of hammering, or in other words by work hardening, but even without any hammering bronze may be considerably harder than this. The value of work hardening bronze is shown by some experiments carried out by Prof. Desch.¹ In one experiment a bronze containing 9.31 per cent. of tin had an initial hardness of Brinell number 136; after work hardening by means of hammering, the hardness was increased to the remarkable figure of Brinell 257. Such figures clearly show the superiority of bronze over copper for implemental use. It is also interesting to note that the hardness of a well-hammered bronze, such as the example just mentioned, would exceed that of a poor wrought iron, although of course the hammered bronze would be the more brittle material.

In dealing with the prehistoric metal we have to make a distinction between true and what may be called 'accidental bronzes'. We find in many prehistoric implements, long before bronze came into general use, marked inclusions of tin in the metal. These are the accidental bronzes, and they were produced

¹ Desch, 'Tempering of Copper', *Discovery*, viii, 1927.

by using the ores from a lode in which copper was associated with tin, a not unusual occurrence. A few examples of such accidental bronzes will illustrate this point. At Tepe Hissar in Iran, in stratum Ib, which is early in the copper culture of that site, we find a pin with 2.12 per cent. of tin, while other implements were practically free of tin. At Tepe Gawra a pin found in level VIII, probably going back to the Uruk period, contained no less than 5.62 per cent. of tin. At such an early time this is an accidental inclusion due to working an enriched ore, and is further proved by the fact that at Tepe Gawra bronze does not appear until 2200-2300 B.C. Many similar examples could be cited.

It does not seem to have been discovered until the closing centuries of the fourth millennium that the addition of a small amount of tin to the copper rendered the production of sound castings in closed moulds possible, and that the addition of about 10 per cent. of tin gave an alloy which was considerably harder, and more serviceable, for implemental use than copper. The first clear evidence of the desire to produce an intentional, or true bronze, occurs in the Royal Tombs at Ur, where we suddenly find quite a sophisticated technique in bronze. Three specimens from the first grave at Ur have been analysed¹ and were found to consist of bronze containing 10 to 14 per cent. of tin. At Tepe Giyan near Nihavend, in Iran, bronze is first found in the second period of level IV. The base of this layer is roughly contemporary with Jemdet Nasr, and so just antedates the Royal Tombs. However, shortly after the construction of the Royal Tombs the supply of tin seems to have failed in Sumer; on the other hand, at Tepe Giyan bronze continued uninterruptedly to the latest occupation of the mound, about 1100 B.C. It is not certain where the tin for this bronze came from. Przeworski,² on a map showing the known tin deposits of Anatolia, shows a tin site on the south slope of the mountain range not far to the north of Diarbekr, on the western branch of the Tigris. This area had for long given supplies of native copper which were used by the peoples of Mesopotamia and the Highland people to the east. The tin ore may have occurred in the same veins as the native copper (as in the Erzgebirge and in Cornwall); in that case it is easy to see how native copper and tin ore would have been melted together in the same crucible and a bronze produced.

If, however, the tin and copper ores occurred in veins at some little distance apart, we can only think that some prospector in

¹ *British Association Report on Sumerian Copper, 1st report, 1928.*

² Przeworski, *Die Metallindustrie Anatoliens in der Zeit 1500-700 vor Chr.*, Leiden, 1939, p. 91.

his search for lumps of native copper, either on the hill-side or in the beds of streams, accidentally collected some pieces of cassiterite with the native copper, and by melting these together made the first bronze. This is not improbable, because the lumps of native copper would have had their surfaces oxidized and appeared a dark brown colour, while cassiterite is sometimes a brownish black. Also if copper was being smelted from oxidized surface deposits of malachite, it is equally probable that a mixture of the two ores would be collected, since in the granite formations copper and tin often occur together. If this is the correct suggestion, it is easy to see how bronze was accidentally produced, and then by trial and error it would at length have been found that about 10 per cent., or rather as close to 10 per cent. as the prehistoric founder could measure, gave the best result.

For some centuries after the erection of the Royal Tombs at Ur the supply of tin used for the manufacture of bronze failed. It is not certain whether it was available during the reign of Sargon of Agada, but it was scarce, though not altogether absent, during the time of his successors, and the finely made tools and axes of cast bronze were replaced by much inferior implements made of hammered copper. As we have already noticed, the people of Tepe Giyan continued the use of bronze without interruption. This suggests that just before 3000 B.C. there may have been one of those irruptions of Iranian highlanders which were a feature of the period between the reign of Sargon and the Kassite conquest of Mesopotamia. The invaders, however, retained the secret of their bronze for their own use, and for that of their friends in their old home. Their home may well have been near Tepe Giyan, though it seems strange that bronze was not known at Tepe Sialk, not far away.

What may be termed 'true bronze' came gradually into use again after about 2500 B.C. At this time, or a little later, a variable bronze appears at Alishar Hoyuk, and shortly after the middle of the third millennium the knowledge of bronze reached the people of north-west Anatolia, where deposits of tin ore have been reported¹ about fifty miles north-west of Alium, and also near Kutahia. Hence the knowledge reached Crete, where the addition of tin to copper to facilitate casting is attested as early as Middle Minoan I, though the standard alloy containing 10 per cent. of tin was not firmly established till Middle Minoan III.² At Troy bronze was cast in considerable quantities before the fall of the second city at about 2300 B.C., and the knowledge was

¹ Przeworski, *op. cit.*

² Childe, *The Dawn of European Civilization*, p. 28.

probably introduced a century or so earlier. On the other hand, at Thermi in Lesbos bronze does not seem to have been known during the early occupations. Certainly from Troy, although possibly from Crete, the art passed on to Greece, where by Middle Helladic I a copper-tin alloy was being used, and then by the sea route to Spain, where there is a tin-bearing area on the Meseta plateau. From Troy the knowledge also spread to the Erzgebirge, round which another centre of bronze culture developed.

From Spain the craft passed to Brittany, where there are remains of ancient tin workings near the mouth of the Loire, and the alluvial deposits of the Morbihan were probably also worked; thence to Cornwall where both tin and copper abound.

In conclusion I should like to express my thanks to Mr. H. J. E. Peake, M.A., F.S.A., for much valuable assistance in the preparation of this paper, and also to Miss L. K. Prichard for the preparation of some of the illustrations.

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Glendarragh Circle and Alignments, The Braaid, I.O.M.

By PROF. H. J. FLEURE, F.R.S., F.S.A.,
AND MARGARET DUNLOP, M.A.

THE Glendarragh sub-megalithic circle and its adjoining alignments are situated in the parish of Marown at a height of 450 ft. on the northern slope of The Mount, a north-east outlier of the southern Manx hill-mass (O.S. 1 in. Sheet 19, Sq. K.6). Drainage from the surrounding fields collects at the site into a small southern tributary of the river Dhoo, which flows eastward to Douglas. The valley of the larger stream forms the south-eastern half of the middle gap of the Isle of Man, an important routeway in prehistoric and Early Christian times. The site commands the wide slopes above the marshy alluvial tracts of this south-eastern portion of the middle gap, and on the sky-line are the magnificent broken uplands which form the heart of the northern hill-mass. The view is known locally as 'The Plains of Heaven'. The name 'Glendarragh' is said to signify in the Manx 'The Valley of the Oaks'.

The earliest reference to the site appears to be Christian's account.¹ His description of the circle applies to-day. He continues: 'Here are also two walks forming an obtuse angle, the whole being partly encompassed within the angle of these walks. One walk is shorter than the other, the longest being about thirty-two and the shortest about twenty-four yards long.' He gives a breadth of approximately 9 yards for both 'walks' or alignments. Haining's description,² quoted in Quiggin's³ and later guide books, speaks of a circle 14 yards in diameter and 42 yards in circumference, and continues: 'The stones which form the circle are not large, but are placed perpendicularly, and from their regular distances seem to occupy the positions in which they were originally fixed. No cairn seems ever to have been raised in the space enclosed by the circle. A stream of water runs on each side of the temple, issuing from two fountains about fifty yards higher up the hill.' This has since been altered by drainage, and the water now flows from a point between the southern rim of the circle and the end of the alignment (E 1; see

¹ John Christian, 'Account of the Parish of Marown, 1776', *Yn Lioar Manninagh*, ii, 29-31.

² S. Haining, *View of the Isle of Man*, 1822, p. 91.

³ Quiggin's *Guide to the Isle of Man*, 2nd edition, 1840, p. 118.

below) round the eastern and northern sides of the circle. 'A few yards on the east of the temple are two walls composed of stones and mound, which bend round the east side of the temple in the form of a semicircle. They are about five yards distance from each other, and enclose a space which was probably used for habitation. They were divided into two apartments by an entrance to the interior circle; and in the south end of the semicircle is another gateway, but the mound at the north end being destroyed, we have no vestige left of the way of admission there.' The gateway at the south end presumably refers to the way between the two mounds, which terminate in stones of megalithic proportions. The northern alignments are of a different construction, and their dry walling was probably covered by earth and gorse at this period. Haining describes the site as 'a barren, bleak, and uncultivated spot of ground'. The field on whose southern uncultivated edge it now lies is ploughed land and forms the upper limit of cultivation.

A. L. Lewis visited the island and published a diagrammatic plan of the Braaid and other Manx monuments in 1872¹. He describes the circle as having a diameter of 47 ft. It was embanked, and nine or ten stones were in position, including two at the entrance, i.e. on the south-west. The 'banks' were demarcated by stones placed against them. Lewis's plan of the northern alignments differs from that of the reconstructed line. In the first place, only one line of standing stones is shown, and there is no suggestion of earth banks on the northern side of the circle. He describes this area as marshy ground and says that the stream crossed 'the avenue'. It is possible that the line was disturbed when the drain was made, but Lewis may have been misled by a collection of loose boulders adjoining the circle on its north-west side and partly covered by scrub. No trace of deviation from a relatively straight line parallel to the modern drain was found during the excavation of the northern alignments.

A report published early in this century states that the ground within the circle was then covered to a depth of about 15 in. with small stones.² These were probably from field clearance. The circle was partly excavated with no results. The report continues: 'On the south side of this circle is another very small circle eight feet in diameter. To the east and north are two pairs of long mounds marked out with upright stones along each side, and three standing stones at head and foot.' The excavator found that 'one of these banks had a core of stones in courses'. P. M. C. Kermode

¹ A. L. Lewis, *J.A.I.* i, 1872, p. 296 and pl. 8.

² A. Rigby, *P.I.O.M.N.H.A.S.* i, 1905, pp. 92 and 121.

noticed the site in 1914¹ and describes 'two rings of stone set on end between the north-east embankments and the circle' which were removed by the makers of the drain. He adds the following details: 'In the northern bank, where it is broken and set at an angle, dry walling about three feet high was found in 1907 by Mr. Rigby. In it were two carefully built vaulted chambers twenty-four inches by eighteen inches and thirty inches deep.' These proved to be empty of contents. It is not clear from this account which alignments are intended by 'north-east embankments'. Probably the northern pair is intended. No trace of any of these rings and chambers mentioned by Kermode was to be found when the site was first examined in 1935, and the scattered boulders between the 'north-east embankments and the circle' had been greatly disturbed by drainage so that they no longer formed circles.

The form and extent of the site may best be gathered from the plan and aerial photograph taken on the completion of excavations (pls. III and IV). The circle of relatively small orthostats and dry walling with an entry at the south-south-east is bounded on the east by two low mounds in which the earth cores are marked out primarily by orthostats, and on the north by a second pair formed mainly of dry walling. The eastern mounds are referred to below as E 1, that nearest to the circle and approaching it in a slightly convex line at a minimum distance of 21 ft. from the circle, and E 2, less curved, and turning towards E 1, from which it is at an average 25 ft. distant. The northern mounds are represented as N 1, at a minimum distance of 28 ft. from the circle, and N 2, a parallel line whose inner orthostats are c. 12 ft. from the stones which line the inner face of N 2. Prior to excavation these northern mounds were only slightly indicated under a dense mass of gorse, while the chief visible features of the eastern mounds were their megalithic southern terminations. The circle was distinct, but had become the centre of a deposit of field stones.

The aerial photograph shows the convergence of the field drains into a small stream which skirts the alignments. The banks thrown up in deepening its channel give a fortuitous appearance of 'Henge' features around the circle, and, together with gorse bushes, of an earthen ring near the northern hedge. Investigations on the ground have disproved this latter, and also the existence of structural features under the slight irregularities off the corner of the fence adjoining the south end of E 1. This point of the fence marks the limit of rotation cropping, as may be seen

¹ P. M. C. Kermode and W. A. Herdman, *List of Manx Antiquities*, 1914, pp. 56-7.

from the difference in grass texture as shown from the air. The irregularities referred to above therefore come within the ploughed area of the field. They probably result from field drainage, as the stream formerly came to the surface farther up the slope.

Both pairs of mounds, though differing in construction, have what may be described as 'sealed' ends. E 1 and 2 are terminated by orthostats (at their southern ends by the largest stones on the site, with the exception of the outlier to the west of the circle), while N 1 and 2 are demarcated at east and west by dry walling. It may therefore be assumed that we are dealing with a complete series of remains, as neither from the air nor on the ground are there indications of additions to the existing features.

The excavation was carried out during the Septembers of 1935-7 with the encouragement of the Manx Museum and Ancient Monuments Trustees by parties of staff and graduate members of the Geography Department of the University of Manchester. We are deeply indebted to the trustees for their scientific co-operation, for generous grants to the expenses of the excavation, and for supplying labour at the site. In particular we should like to thank Mr. John Drinkwater of Kirby House, Chairman of the Trustees, His Honour Deemster R. D. Farrant, Senior Deemster of the island, Mr. William Cubbon and Mr. B. R. S. Megaw, former and present Curators of the Manx Museum, Douglas, for their help and encouragement. Mr. G. J. H. Neely, Inspector of Ancient Monuments in the island, assisted us in innumerable matters connected with supplies, transport, and photography. The Braaid group is as yet unparalleled and presents many difficulties of interpretation. Our task here has been made easier by the kind assistance of Dr. Gerhard Bersu, whose work has added greatly to our increasing knowledge of west European habitation sites.

The 1935 season was spent in excavating the circle and clearing the alignments. There seem to have been attempts to dig down into the centre of the circle on previous occasions, and further disturbance when these excavations were filled up with field stones. The central area was filled in after excavation, and, prior to the settling of the earth, appears as a slightly raised disc on the aerial photograph.

The circle has an inner diameter from north to south of 45 ft. and from west to east of 46 ft., owing to a slight outcurving of the circumference at the point nearest to E 1. It has a paved entry on the south marked by two pairs of stones placed almost at right angles to the circumference of the circle and bounded by the

longest stretch of dry walling around this latter. 16 ft. away, on the west, is a large outlier which had fallen from its erect position.

The centre and periphery of the circle were cleared of turf and stones to a depth, varying with the slope and previous deposits, of from 1 to 2 ft. Under a thin cover of dark humus and disturbed surface soil, the subsoil is deep and consists of yellow glacial clay with a fair, though not excessive, stone content. The clay subsoil is masked along the sides of the stream, i.e. east and north of the circle, by a grey-blue alluvial deposit with a high clay content. The circle and its surroundings were cleared to the level of the undisturbed subsoil. In doing this several of the fallen or leaning orthostats were replaced in their sockets. There were no sockets which could not be filled from orthostats adjacent to or leaning from them, and no traces of post-holes in the disturbed interior of the circle. The standing stones vary in height from 1 to 5 ft., with the highest on the east. They are mainly of local Manx slate, which weathers easily and which, from its ready cleavage, has been used for the intermediate dry walling. A small number of the lower orthostats are of sandstone, as is the re-erected outlier to the west. A large outlier of rock differing in composition from the majority of the stones of the circle is a feature of the great group of Long Meg and Her Daughters in Cumberland. Our circle is probably a house-site, but this analogy hints at a possible heritage from megalithic cultures, which survived into Christian times. On the north-east of the circumference, and *outside* the dry walling, are four small quartz boulders. They may be related to two larger quartz masses indicated with the same symbol on the ground plan, which lie at the north-east ends of E 1 and E 2, and they adjoin features which seem further to link the circle and eastern alignments. The symbolism of white quartz is well known as a world-wide phenomenon. Over 200 beach pebbles of this material were found in investigating the horned cairn at Cashtal yn Ard,¹ eleven miles to the north-east, while two miles to the north-east across the Dhoo valley at Ballafreer, and four miles east at Glencrutchery on the outskirts of Douglas, are two undoubtedly phallic white quartz monoliths. There are veins of quartz in the valley of the Santon Burn, less than one mile west of the site, and in addition, quartz boulders among the glacial deposits of the island. The entry, outlier, and main features of the circle may be seen from pl. VI A. In this view, taken at the close of the 1937 season, the southern portions of E 1 and 2 may be seen behind the circle. The line of the circumference was completed between the orthostats by dry walling. This was built up,

¹ H. J. Fleure and G. J. H. Neely, *Antiq. Journ.* 1936, xvi, 373-95.

where it was dilapidated, from fallen slabs adjoining the basal layer, to an average height of 1 ft., or three layers of slate slabs. These were found at several points *in situ*. At two points indicated on the plan, viz. adjoining the outlier, and diametrically opposite to the entry, additional dry walling was found surrounding rectangular areas c. 3 ft. by 1 ft. 6 in. (see pl. VII A). It is possible, if the circle had a religious function, that these were the bases of steps used in connexion with ceremonial processions into the circle. Further suggestions of these last were found adjoining the north-eastern rectangle and the quartz blocks, in the form of three long thin slabs of Manx slate prone below 1 ft. of alluvial deposit (pl. VII A). The longest of these stones is 7 ft. from north-west to south-east, along which line the three lie. These recumbents have no structural usefulness, and though their surfaces are by no means worn by usage, they may have formed rough steps. All signs of smoothing of the surface have in any case been removed by the decomposition of the soft slaty shale under the covering of alluvial and other debris. A roughly paved area leads from them across the stream to the gap between the two groups of mounds. The pavement was uncovered in 1937 from beneath alluvium varying from 1 ft. to 1 ft. 6 in. in depth. It was flooded by the stream when we left the site and further washed by overflow water in the succeeding winter. In March 1938 Dr. Estyn Evans and Mr. B. R. S. Megaw found on it two flint flakes, one nodule $\frac{1}{2}$ in. across, and one 1 in. long with its edges slightly serrated by attrition.

The 1935 season yielded the greater proportion of relics, but, as in the following seasons, there were no objects among the finds which could be used in assigning the monument to any phase or phases of prehistory, or which indicated the purpose of various structures included in the site.

The finds from the circle area include the following:

1. A flint nodule and a flint chip.
2. A sandstone disc 3 in. in diameter and with a maximum thickness of $\frac{1}{2}$ in. It is incompletely bored to a depth of $\frac{1}{2}$ in. on each side and the centres of the perforations are the same distance apart horizontally.
3. A roughly triangular slate fragment with sides 3 in. long and perforation of $\frac{1}{2}$ in. diameter 1 in. from the apex. The perforation is in this case complete.
4. A rounded piece of ferruginous sandstone $3\frac{1}{2}$ in. by 4 in. with rough incomplete perforation on its pointed end.
5. Sparsely scattered charcoal from the surface of the subsoil in the north-east quadrant.

With the exception of the charcoal the above were found in the

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disturbed surface deposits inside the circle, where previous digging has disarranged the stratification.

In September 1936 we continued to clear and investigate the eastern mounds. Pl. v A shows these on completion of the work. This pair of alignments converge slightly upon each other, the curve of E 1, i.e. the western alignment of this pair, being greater than the curve of E 2. Their lengths, measured in each case from the stones marking their inner tips, are E 1, 63 ft., and E 2, 62 ft. As has been stated, they are on an average 25 ft. apart, and though the earth core of E 2 maintains a width of 5 ft. for most of its length, narrowing only at the southern end, E 1 is of similar width in its southern half, but increases to 7 ft. in the northern half, where there are constructional differences.

As in the circle, all the orthostats were in place, or present near to the sockets in which they were replaced. The standing stones formed a fairly continuous series along both mounds, and those at the sides had an average height of 3 ft. The only groups of stones of really megalithic proportions at the Braaid are those which mark the southern ends of the eastern alignments. In each case two stones, one with roughly pointed and one with flat top, are dominant. On clearing the northern half of E 1 it was found that the stones which bound the core of the mound on the side nearest the circle were semi-recumbent. Those tested were found to be firm in their sockets, and it is suggested that this method of bounding the soft core of the mound was adopted at this point because while the stones maintain the average height of the other orthostats, the core itself is higher and the weight of soil greater at this point. No dry walling was employed here, but it occurred on the southern inner face of E 1, where, probably because it formed part of an enclosure, it was not faced with orthostats. It was also employed at both ends of E 2, with and without a facing of standing stones (see pl. iii). There was usually a space of about 6 in. between the dry walling and the orthostats, and because of soil slip the walling was for the most part preserved intact. Prior to excavation the alignments had been covered with a dense growth of gorse and rough grasses, with a result that the upper part of the core revealed itself as loose friable humus as is common under gorse thickets. A section across E 2 at a point midway between the two small enclosures gave the following downward succession below the humus layer: 1 ft. 2 in. yellow granular soil, probably the result of vegetation growth and oxidization; 5 in. transitional between this and 3½ in. of greyish-blue clay; 4 in. of yellowish-grey clay; 3 in. of grey-blue clay with consolidated patches of gravel, and finally the yellow subsoil.

This suggests that the builders used a stony foundation topped by a clay core from the stream in constructing the mound. Sections taken through the western line E 1 tended to have as much as 1 ft. 4 in. of clay and gravel core. The core of E 1 maintains a greater average height than that of E 2.

The major part of the area between the eastern mounds was roughly paved, as shown on the plan. Three enclosures, constructed mainly of dry walling with some small standing stones, were revealed against and within the mounds. Pl. VI B represents the more northerly enclosure on the inner side of E 2. The areas of these enclosures are roughly: northern, E 2, 9 sq. ft., southern, E 2, 24 sq. ft., and that against E 1, 36 sq. ft. All three yielded charcoal, the total from each diminishing as their size increases. Though the smaller circles may have been hearths, there was no continuous charcoal layer or reddening of the surrounding clay floor to suggest any long period of occupation, and here, as in N 1 and N 2, the charcoal tended to be confined to pockets near the bases of the surrounding stones. Some charcoal had been scattered outside no. 3, which is the only enclosure large enough to have formed a 'squatting' place. There were no further finds from E 1 and E 2, and at no point were post-holes found from any structure linking the mounds or within the area enclosed by them. The slight slope from this to the northern pair of mounds has a central paved path. This does not reach as far as N 1 and 2.

In 1937 we turned our attention to the lower and more disturbed northern alignments. Their greater dilapidation appears to be due not so much to interference as to the method of construction. Whereas the eastern alignments have been built of orthostats and dry walling in a style very similar to that of the circle (apart from the fact that the stones bounding the mounds are naturally wider and more squat than those of the circle), N 1 and N 2 are almost wholly constructed of dry walling. The collapsed orthostats are free-standing for the most part, and are thin slate blocks. Again, N 1 and N 2 differ in themselves, N 1 being higher, with more elaborate dry walling, while N 2 is much lower and narrower, but has six free-standing monoliths along its inner face. N 1 is 55 ft. long and 7 ft. wide, with at present an average height of 3 ft. N 2 is 56 ft. long and 4 ft. wide for the most part, widening abruptly to 8 ft. at a distance of 9 $\frac{1}{2}$ ft. from its eastern end. These alignments are 12 ft. apart. That nearest the circle will be described first.

The core of N 1 was found to be almost wholly of stones, but the entire line had had a bank of earth thrown over it, and this

had percolated among the dry walling. Clearance rapidly revealed stones, particularly at the base of the dry walling, of a much greater size than those performing this function in other parts of the monument (see pl. vii B). The upper stones were also larger than those used in the circle walling and in E 1 and E 2. This was most noticeable on the inner side of N 1, where the stones have been shown individually on the plan, and not diagrammatically, as elsewhere in the case of dry walling. The dry walling of the outer or southern side of N 1 matched, in the size of the stones, the inner north-east side shown on pl. vii B, but at the western end the stones became smaller and lower in height, there being on an average three rows of collapsed blocks, flanking an inner core built up separately from ground-level. This double series of dry walling is also found on the inner side, and at the eastern inner end a line of four large flat blocks converges on the comparable stones of the main inner face. Two small enclosures bounded by upright stones were found inside the mound, and one adjoining the circle side. The group of stones in the foreground of pl. vii B was proved, as excavation proceeded, to be part of the collapsed dry wall. The bounding wall has also spread stones inwards in its collapse, and these mask the enclosure within the mound which is marked by a leaning orthostat in the photograph. As may be seen from this photograph and from the plan, both must have been sealed by dry walling. If they were used for burials or other deposits, all trace of their contents has now disappeared, with the exception of a slight amount of charcoal which was found in greater quantities elsewhere along N 1. In view of their position within the mound, the bounding stones of these enclosures are more nearly megalithic than those adjoining E 1 and E 2. A small group of horizontal stones surrounding a pocket of practically pure clay, which gathers a slight amount of rain-water at the present day, flanks N 1 at its eastern end, on the side adjoining the circle. It may be seen on the left of pl. v B. N 1 is bounded on its inner side by five orthostats. The tallest is the flat-topped stone shown on pl. v B. That at the opposite end is pointed and shorter. The three intermediate stones are not more than 2 ft. high. The central one is embedded in the dry wall and is not shown separately on the plan. The remaining pair are free-standing, the eastern one being flat-topped like its taller neighbour, the western pointed like the orthostat in the dry wall at the western end. From the line marked by the inner free-standing stones a rough paving of flat slates stretches across to the orthostats of N 2.

Charcoal was recovered in small quantities from various

points along N 1, viz. from between the dry walling at the western end, from clay pockets in the collapsed dry wall on the south-east face, from beneath a stone lying just inside the wall adjoining the circle and c. 18 ft. from the east end, and from the two rough chambers in the mound, as already stated. Other finds from N 1 include two possible quartz implements, one from outside the middle of the outer of the two courses of dry walling on the circle side, the other from the disturbed walling in the central area. The first quartz piece is just over 2 in. long and 1½ in. across. It appears to have been chipped to form three faces culminating in a sharp point. The opposite end is fashioned like a hollow scraper. The more doubtful piece is a nodule 2½ in. long with four rough faces which terminate in a point which is now broken.

Further details which may be noticed before passing on to consider N 2 are the possible existence of post-holes and of two constructional phases for N 1. Holes were found at intervals along the outer wall of the south-east end of N 1. Although distinct and rounded, unlike the sockets of the displaced orthostats, it is difficult to form any definite conclusions as to their purpose, as the inward collapse of the outer dry wall had obliterated any impressions in the soft basal clay. A similar socket was found in the centre of the rough paving between N 1 and N 2, but there were no comparable holes along N 2. The arrangement of the walling along N 1 suggests two periods of construction. The first was that in which the central clay core was probably built up within the retaining inner dry wall, and, at the western end, within small upright slabs in addition. As it appears to have been necessary further to strengthen the base, the outer dry walling, a much lower feature, was added on the circle side, and the kerb of large stones was placed at the base of the inner side, and dry walling constructed upon it. At the eastern inner end the walling of the core may have been replaced rather than contained by the kerb, as the four large horizontal stones which match the kerb here are at the level of its main basal stones. They are separated from the latter by earth and not by the customary mass of slabs fallen from the insecure inner wall, as elsewhere along the alignment. Along N 2 only the stones bounding the inner face at the eastern wider end are comparable in size to those along the entire inner face of N 1. There are along N 2 at the eastern end two flat slabs 3 ft. and 4½ ft. long, and their line is continued first by dry walling for 3 ft. terminating in a smaller recumbent, and after a space of 6 ft. by a series of six orthostats, all of which were fallen prior to excavation. With the exception of that next to the western end stone, their sockets showed them

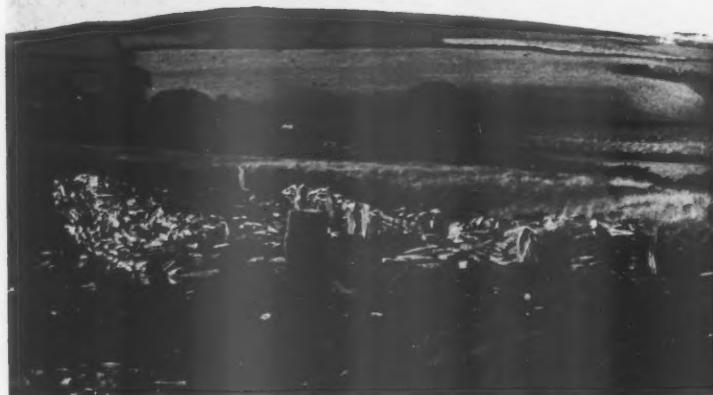


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The Braaid Circle and alignments from the air



A. The Eastern alignments from the South-east

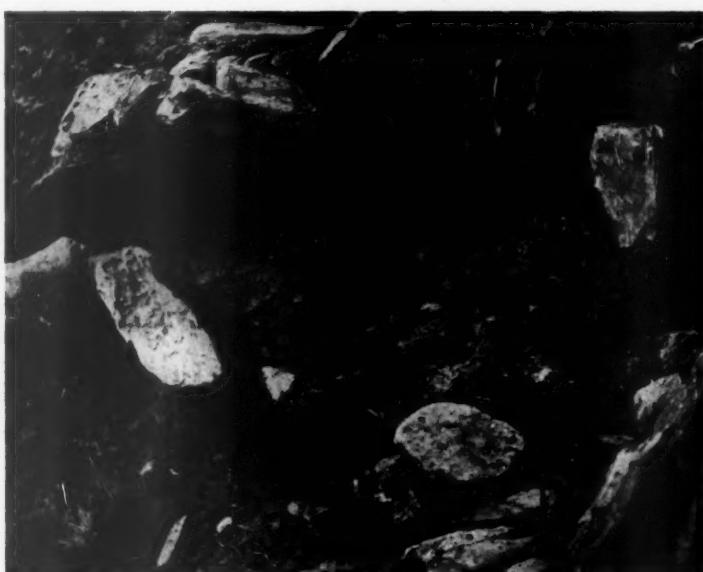


B. The Northern alignments from the East



A. The Circle and Eastern alignments from the West

Taggart, Douglas



B. Northern enclosure, E 2

Elwyn Davies



A. The N.E. side of the circle showing dry-walling, quartz blocks, and recumbent slabs



B. Detail of the inner Eastern End of N1 backed by Eastern alignments
Taggart, Douglas.

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to be parallel with the alignment along their greater breadth. Pl. vB shows them after replacement, and it may be seen that they are comparable in size with the eastern end stone of N 1. Their average height is 4 ft. There is an enclosure with orthostatic walling comparable with the two in the body of mound N 1 at a distance of 19 ft. from the eastern end of N 2. The last-named point was completely soil-covered before investigation, and here the highest and least-disturbed dry walling has been preserved. It rises higher than the two standing stones which mark the corners of the mound here to a height of slightly more than 4 ft. Behind it is a square dry-built chamber which was the only clearly exposed part of the mound prior to excavation. The workmanship of this construction is such that it would hardly survive over a long period of time, and it was probably of later date and may have been used for the temporary storage of farm tools, and it was used as such by the party. The core of N 2 is from 3 to 4 ft. wide, i.e. closely similar to the core of N 1. From the outer dry wall of N 2 to the inner line of orthostats one covers a distance of from 7 to 8 ft., i.e. the total width of N 1. The mounds are practically identical in length, and if the addition of the orthostats along N 2 was made to achieve symmetry in breadth, this also has been accomplished. This helps to explain why on the northern side on N 2 alone among the longer sides of these northern mounds there are no elaborations of the original low dry walling.

There were no relics from N 2, but from a point midway between N 1 and N 2 at the western end comes a heavily patinated three-faced flint point 1½ in. long with an indentation which allows for a firm grip of the blunt end. It was embedded 4 in. below the disturbed surface soil.

The Braaid monument has added little, in the absence of comparable sites, to our knowledge of the purpose and significance of the four long mounds which adjoin the circle. There was nothing among the small number of finds which suggested that this was a habitation site or that it was used for burials. There are many unopened round cairns in the vicinity which may have been used for interments by the builders of the circle and mounds. The 'hearts' built against E 2, though undisturbed, yielded only very small amounts of charcoal, and the clay floors were not hardened or discoloured by heat. Only small fires must have been lit there, and these infrequently.

The whole group may have been used for ceremonial purposes. This use would explain the 'stepped way' leading out from the circle by a paved path into the space between the two pairs of

mounds, the entry to the circle, the 'hearts', the line of white quartz stones in the circle and eastern mounds, and the juxtaposition of pointed and flat-topped stones which may show sex symbolism. Circles of this size and type in the western coastlands of Britain rarely yield datable relics, and it is usually assumed that they were important features of the religious ritual of some megalith builders.

Though, as a group, the Braaid is difficult to match and to explain, there are a number of details which may be compared with megalithic features elsewhere in Britain. They are the outlier, the entry to the circle, and the stones bounding the eastern mounds. Circles with outliers are a fairly widespread feature of western Britain and of the adjoining regions.

A group of stone circles with entries comparable to that of the Braaid is to be found around the Lake District. The first two are part of a series of fine megaliths which form a line across the Shap limestones down to the middle Eden basin and probably drew their inspiration from the cultures of the Lowland Zone of Britain via the Stainmore Gap. They are Gunnerkeld, Shap, where two uprights stand off the northern end of the outer of two incomplete concentric circles (the interior is not comparable as the inner circle encloses a burial mound as elsewhere on Shap), and Long Meg and her Daughters, Addingham, the great oval with its ornamented red sandstone outlier to which point two megaliths which stand parallel with and c. 10 ft. and 5 ft. from two of the stones on the periphery. The third circle is Sunken Kirk, Swineside, Millom, which lies west of the Duddon estuary in that part of south-west Cumberland which looks out on to the Isle of Man. This is the only circle among the great examples fringing the Lake District which can be called a true circle. A further point of comparison with the Braaid is that smaller stones, but not dry walling in this case, fill the spaces between the main megalithic ones. The pairs of stones which form the entry occur in this case on the south-east side.

The fashion of building in dry walling flanked by large slabs is not uncommon in Iron Age sites in this country. Examples are to be found in Lancashire-over-Sands, Glamorgan, and Dartmoor. A comparable case may be the remains which are said to have existed in and around the churchyard of Kirk Braddan, which is placed above the river Dhoo, a mile upstream from Douglas and $2\frac{1}{2}$ miles east of the Braaid. Oswald's¹ rough diagrams indicate mounds flanked by standing stones, and at the present day lines of stones partly buried by turf may be noticed

¹ Oswald, *Yn Lioar Manninagh*, iii, 434.

there. As dry walling is found in all the sub-megalithic structures included in the Braaid group, it is probable that an Iron Age or later date should be given to them. The lack of burials points to a site with religious function or a series of dwellings. A tentative indication of ceremonial features of the circle has already been given, though its use in this connexion cannot be confirmed. Taken in conjunction with the differing alignments it is possible, on the other hand, to interpret the group as successive habitations, for which comparisons may be found elsewhere. A survey of house types pertaining to the later prehistoric and Early Christian periods suggests that on a site occupied over a long period there were built in succession at the Braaid: (1) the circle; (2) alignments E 1 and E 2; (3) alignments N 1 and N 2. Dr. Bersu has kindly indicated that this is his interpretation of the site. The ground plans as indicated by dry walling and orthostats have been used in the comparison which follows. Post-holes, if present in the original structures, had been almost entirely lost in the disturbance of the site, and the floors have probably been washed downslope by the waters of the springs above the site. The lack of finds is common to many habitation sites of the British Highland Zone and western coasts.

The circle may then be regarded as the foundations of a round house. Examples with dry walling and standing stones have been found in many places along the Irish Sea coast-lands, and those in the hut group at Pant-y-Saer in northern Anglesey may be cited as an example.¹ The exterior diameter of the two larger huts here is 45 ft. as compared with 46 ft. within the ring at the Braaid. As is usual, smaller dry-walled circles were included in the complex, and the subsidiary rings at the Braaid cited by Kermode are probably comparable. In less harsh country (and probably in warmer conditions) Neolithic farmers built in wood, for example, at Little Woodbury. Here we find a round house of similar diameter.² The diameter of the Braaid circle suggests that wooden poles would be needed to supplement the outer walls in supporting the roof, as at Maiden Castle (Dorset), and House Q, Dalrulzion, near Blairgowrie (Perthshire).³ The dampness of the site on the ill-drained slope may have been overcome by raising the floor as in the Neolithic house at Lough Gur, co. Limerick. Burials of the Scandinavian Late Bronze Age have yielded urns which are clay replicas of such houses. They are often round and their ornament indicates a periphery of upright

¹ Roy. Comm. Anc. Mon., *Anglesey*, 1937, 70-3.

² Gerhard Bersu, *P.P.S.*, 1940, 78-91.

³ W. Thorneycroft, *P.S.A.S.*, 1932-3, lxvii, 187-208.

posts supporting a conical roof broken at the apex by a smoke vent.¹

Alignments E 1 and E 2 form a boat-shaped house of the type known from Scandinavia and Iceland. At the Braaid the side walls, stronger for constructional purposes, remain, while the less solid gable walls which were probably of laths and had the doors have disappeared. An Icelandic 'temple' may be cited as comparable with the dry-built, orthostat-faced bounding walls at the Braaid. The 'banqueting hall' of Hofstaor, Mývatn, northern Iceland, is from 19½ ft. to 26 ft. wide and 118 ft. long, and the stone walls are incurved.² The same ground plan is seen at Trelleborg, near Slagelse, in western Zealand, where the houses were wholly of wood and were relatively light, being within a strong stone-built rampart with an earthen core.³

The final stage in the occupation of the Braaid is suggested by the rectangular house bounded by alignments N 1 and N 2, which in itself appears to embody two successive phases of building. The first house probably had a wide central nave separated by upright stones from the two outer aisles. The second period saw the consolidation of the well-built dry walls along the aisles, partly filling them up, especially in the case of N 1, where the orthostats were incorporated in the inner side of the wall and possibly broken across to conform to its height at this date. The wall in N 2 was built outside the free-standing orthostats, giving the asymmetrical plan of the present day. All the standing stones on the inner side of N 2 were fallen when excavation began. From the outer side of N 1, within the dry-walling, came the only suggestions of post-holes from the site. The northern mounds in period II form the side walls of a rectangular house, a type again relatively common in Scandinavia. In Sweden a group of long rectangular houses, not as yet conclusively dated, have, like the Braaid, no fire-places or household refuse, and it has been suggested that they were intended for sanctuaries rather than normal habitations.⁴ Rows of detached wooden pillars within rectangular houses are characteristic of Iron Age and later periods in Scandinavia, and within this phase comes their 'Migration Period', to which belong the white phallic stones similar to the two cited near the Braaid from Man.

During the 1941 season Dr. Bersu has excavated two settle-

¹ H. Schetelig, H. Falk, and E. V. Gordon, *Scandinavian Archaeology*, 1937, 319.

² D. Bruun and F. Jónsson, *Aarbøger for nordisk Oldkyndighed*, 1909, 254 ff.

³ C. O. Skilbeck, *Antiquity*, 1940, 272-9.

⁴ T. J. Arne, 'Hus från bronsåldern i Sverige', 1925.

ment sites in the south of the island and these have provided certain features which are comparable with those of the Braaid. At the Cashtal, Ballygawne, a long rectangular building was revealed on the top of the isolated rock knoll there. There were regular rows of post-holes within, which would have supported a fairly massive roof. A lack of habitation material led Dr. Bersu to assume that it was a fortified storehouse, possibly a communal granary, in late Viking times or soon after. The second site is at Ballacagen, near Castletown, where excavation is still in progress. Here, a large round house had concentric rings of wooden posts some of which are preserved. A thick habitation layer has yielded mainly charcoal and animal bones, together with some very coarse pottery, saddle and rotary querns, an amber bead and several yellow paste beads, a bronze harness ring, and evidence that lead, and possibly copper, smelting was practised on the site. The date was possibly c. A.D. 500, though the house appears to have been in continuous occupation for several centuries. We are indebted to Mr. Basil R. S. Megaw for the details summarized above.

The phenomena of the Braaid complex, the early round house, the addition of the boat-shaped house, and the latest addition in the form of a rectangular house, are partly comparable with some of our so-called 'British villages'. The Howarcles settlement in the parish of Crosby Ravensworth shows round, rectangular, and intermediate shapes among the houses within its bounding wall.¹ The greater number of houses of the boat-shaped and rectangular types known at the present time are to be found in Scandinavia, and at the Braaid we may have still further evidence of Manx contacts with the lands east of the North Sea. The Scandinavian connexions of the Isle of Man have already been demonstrated in its place-names,² in its antiquities of the Viking Period,³ and in the physical composition of its inhabitants.⁴

¹ Roy. Comm. Hist. Mon., *Westmorland*, 1936, 88.

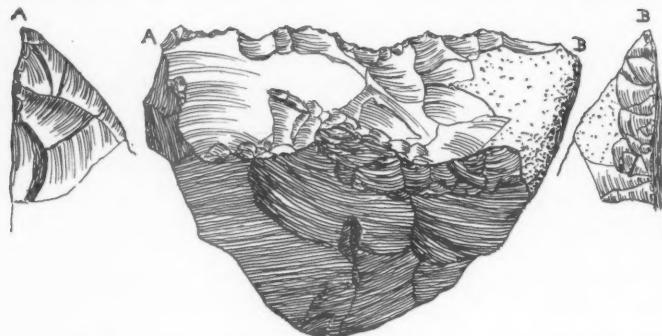
² J. J. Kneen, *The Place Names of the Isle of Man*, 2 vols., 1925-9.

³ P. M. C. Kermode, *Manx Crosses*, 2 vols., 1907.

⁴ E. Davies and H. J. Fleure, *J.R.A.I.*, 1936, 129-88.

Notes

A pre-Crag Side-Scraper.—Mr. J. Reid Moir, F.R.S., sends the following note: Recently Mr. H. E. P. Spencer, a member of the staff of Ipswich Museum, found, in Holywells Park, Ipswich, the specimen here described and illustrated. The park is situated on the eastern side of the town, and on the



A pre-Crag Side-Scraper

north bank of the Orwell estuary. At certain places tributary valleys have cut deeply into the beds forming the plateau and, in doing so, have exposed the Red Crag, which in this area is often highly fossiliferous, of considerable thickness, and wide extent. The Holywells site is, in fact, close to the pits at Greenwich Farm, and the Back Hamlet, from which I recorded the discovery of pre-Crag implements in 1920.¹ The old excavation where Mr. Spencer made his find is now much overgrown, and a slope of talus obscures the deposits into which the pit was originally dug. But, at some distance from the surface, there issues a spring which is continually washing out typical shells and other Red Crag detritus, and it was in this outwash that the flint now under consideration was lying. It will thus be realized that the specimen was not found *in situ*. When, however, all the circumstances are considered, there will remain, I think, little doubt in the minds of most people that the flint was derived from the Red Crag. Moreover, the presence of the spring indicates, in all probability, that the specimen was embedded originally at the base of the Crag where it rests upon London Clay, and from which horizon, as is well known, many springs of water originate. This conclusion, too, receives overwhelming confirmation when an examination of the flint is undertaken. For in many of its interstices are to be seen portions of shells, and red sand, while the patination of its flaked surfaces, and the staining and character of its cortex, are precisely similar to very numerous other specimens derived, indubitably, from the Suffolk Bone Bed beneath the Red Crag. The flint is indeed, in virtue of these character-

¹ *Proc. P.S.E.A.* iii, part iii, 389-430.

istics, representative of the specimens of group 4 of the pre-Crag industries.¹ So much for its provenance.

Secondly, what does the flint look like? The flaked areas of the specimen are coloured a creamy white, exhibit a noticeable surface gloss, and are further beautified by irregularly placed films of tawny red, and by numerous smoke-grey to black points and splashes of dendritic outline. The patches of cortex are straw-coloured, stained in places a warm red by the Crag sand with which the flint has been in contact since the remote time when East Anglia went down beneath the sea in the late Pliocene epoch. Clearly, Nature has succeeded in transforming what must have been a not too prepossessing black flaked flint into an object of beauty.

Lastly, what is to be said about the specimen from the archaeological standpoint? Evidently a largish flint, from which one or more flakes had already been removed, was subjected to a powerful cleaving blow delivered, in all probability, by a hammer-stone of considerable weight and size. This attack resulted in the detachment of a thick flake, or chunk of flint, which carries, on its lower surface, a well-formed and prominent cone, and bulb of percussion, together with an *éraillure* and radiating fissures. The striking-platform of this flake which in section was of massively triangular form, is composed of an area partly cortical and partly flaked. A series of co-ordinated blows was then delivered by a hammer-stone, presumably of lesser size than that used in the original fracturing of the flint, near the longer extremity of the flat bulbar surface, resulting in the production of a somewhat engrailed, and no doubt effective, edge for scraping purposes (fig.). Moreover, at right angles to this edge, and at each end, a certain number of steep flakes, necessitating, for their satisfactory removal, a different manner of holding the flint than that adopted in the second stage of flaking, was detached (fig., A and B). It is not too easy to decide why this steep flaking was indulged in, but it may well have been undertaken to enable the implement to be used as a push-plane at the points A and B. Or it is possible this flaking was carried out to facilitate comfortable prehension of the specimen. Thus far all the flake-scars described are such as are produced by what is known as 'free' flaking: but there are some fractures present upon the implement which were obviously produced by the opposite, 'resolved' method. These particular flake-scars are clustered along the more or less central ridge of the upper surface of the implement (fig.) and, in my opinion it is reasonable to conclude, represent the result of blows delivered deliberately to reduce the acerbities of this ridge, and thus to make the specimen easier to hold. On this one implement, then, are to be seen three distinct types of flaking, viz. 'cleaving', 'free', and 'resolved'. The specimen coincides, not only in its patination, with those of group 4 from beneath the Red Crag. In this group side-scrappers represented the most abundant type of implement. Again, in this group, no less than 102 out of 125 specimens examined were slightly rolled, and 101 slightly striated.² The implement under examination conforms precisely with these characteristics. To those who know of and recognize the significance of the facts here set

¹ *Journ. Roy. Anthr. Inst.* lxv, 1935, 343-74.

² *Ibid.*

out there can remain little doubt that yet another outstanding example of man's handiwork (a side-scraper) from beneath the Red Crag of Suffolk has been found by Mr. Spencer.

Lower Palaeolithic tools with retouched edges.—Mr. A. D. Lacaille, F.S.A., contributes the following: In the course of field-work and in the handling of large numbers of stone implements of all ages from different parts of the world I have observed marks of use along the margins of many fractured stones. These signs show that even in industries of high craftsmanship advantage was taken of natural convenient edges as well as of those produced by intent. Doubtless, such 'accommodation-tools' were efficient enough for some purposes, among them scraping. By various degrees of trimming, from rudimentary to delicate retouch, such pieces could be made still more serviceable. Despite the atypical facies of these tools, when judged by normal standards and when the rock is one of those familiar tractable sorts, the character of the dressing is often recognizable as that of the known culture to which the objects are referable.

Two scrapers and a pick-like tool from the Thames terraces afford instances of the employment of materials which presented themselves in such attractive form that they were quickly adapted into excellent implements.

Fig. 1, no. 1, consisting of a pebble of light greyish-brown chert, $3\frac{1}{2}$ in. (0.089 m.) long, from the stratified fluviatile gravel 5 ft. from grass-level in Almond's Pit, Lent Rise, Burnham, Bucks., is split by thermal action, irregularly in its coarse narrow part but evenly from the middle along a fissure where the rock becomes finer in texture toward the wider end. Such was the original shape of the pebble that the fortuitous fracture gave a low and uniformly curving edge. This bears rather abrupt retouches along its whole length, their appearance suggesting fairly advanced Clacton style. This and the fact that the worked edge and the surfaces are slightly abraded indicate that the specimen may be assigned to the derived intermediate series of Clacton (II) products which are abundant in the deposits of the lower Boyn Hill Terrace in the Maidenhead district (*Antiq. Journ.* xx, 254-6).

The other example, fig. 1, no. 2, measuring $2\frac{1}{8}$ in. (0.069 m.) in length, from Tring Avenue, Ealing, has a simply but skilfully trimmed working-edge achieved at the intersection of two naturally flaked areas. The nether and now horn-coloured patinated surface owes its large flake-scar to thermal action, while scars on one side and vestiges of scars at what is now the working-end testify to injury by concussion, probably by solifluxion. Upon the latter of these damaged parts was imposed fine regular flaking involving the cortex and revealing the banded and mottled dark flint of which the pebble is composed. The recovery of this specimen many years ago at the base of the brick-earth overlying the gravel of the Taplow Terrace points to the tool's being ascribable to a Levallois industry. The unscathed condition of the flake-scars and ridges resulting from treatment contrasts with that of the working-edge, which exhibits the signs customarily associated with wear in scrapers.

These two tools are admirably adapted to the grasp, but being fashioned

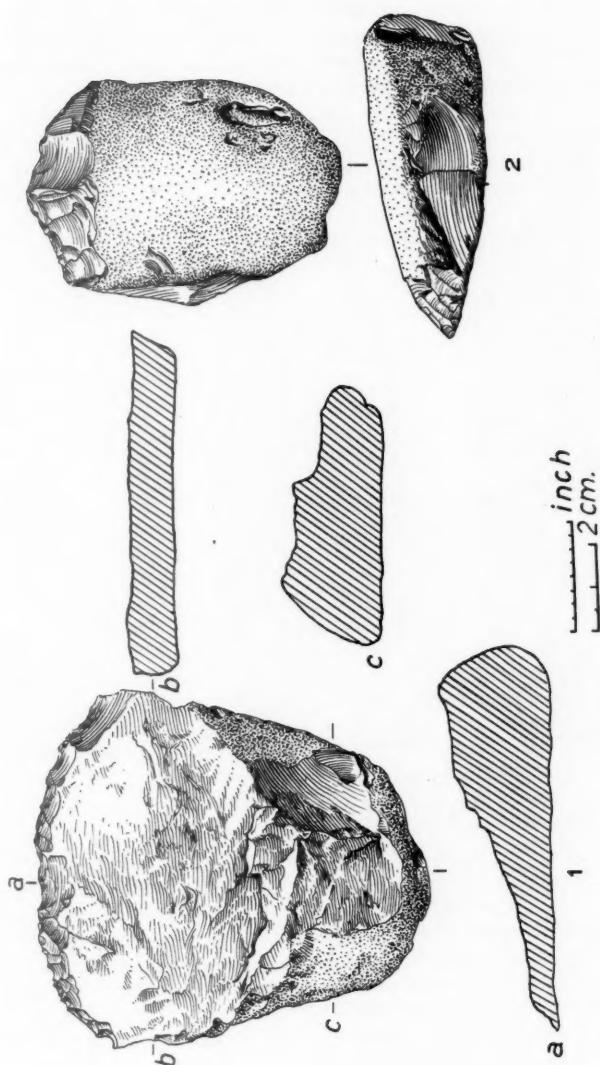


FIG. 1. Lower Palaeolithic tools with retouched edges

in pebbles they do not differ essentially from so many palaeoliths. That the possibilities of other natural formations occasionally attracted notice and served (probably because they offered an easy handgrip) appears. No. 3 (fig. 2), figured as exemplary, is a noteworthy instance. It is worked in a thick

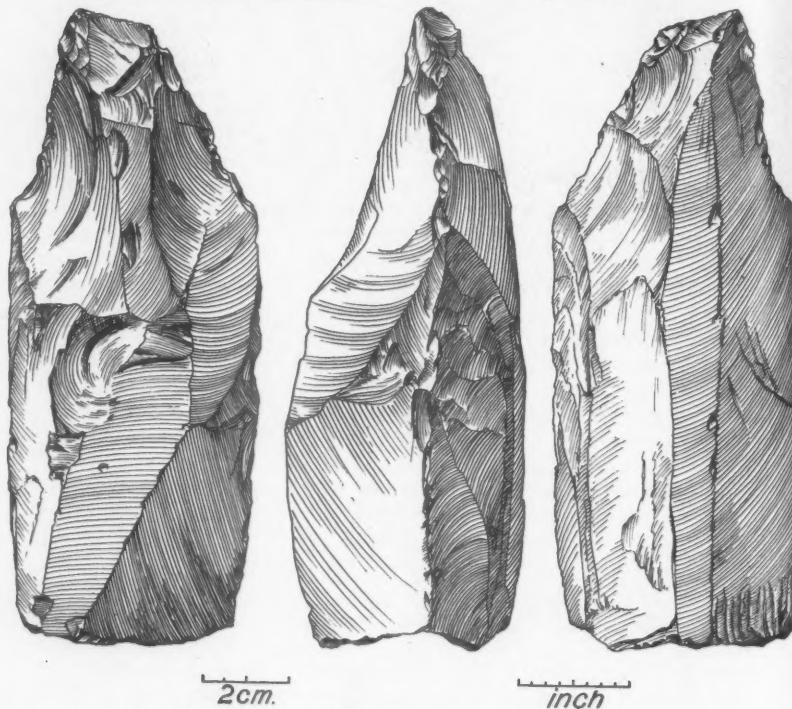


FIG. 2. Lower Palaeolithic tool with retouched edges

prismatic rod of flint, $5\frac{1}{2}$ in. (0.1445 m.) long, faceted lengthwise by 'starch fracture'. It is stained to that shade of yellowish-green so familiar to collectors of implements from the Swanscombe Middle Gravel where this object was found. One end has been worked by flaking to a basil tip in the same technique as the innumerable bifacial and other implements from here that are referred to the third stage of St. Acheul culture. The circumstances of discovery and the unimpaired edges of the worked portion indicate that this specimen may be assigned to this Lower Palaeolithic division.

In localities remote from supplies of sizable and tractable materials, tools manufactured in pebbles and other formations might not be regarded as very remarkable. Belonging for the most part to Bronze Age stone industries, the numerous small scrapers from the south-west of Scotland, delicately dressed along the edge of portions of flint pebbles of Irish origin, may be cited as late instances of the employment of convenient pieces. The principal

reasons dictating the use of such material at the Scottish sites were the rarity of docile native rocks and the necessity for economizing in substances which had to be imported. But in such a region as the Thames valley where such considerations had not to be taken into account, the occurrence of artifacts of seemingly crude character ought not to pass unnoticed. Comment appears the more necessary when on examination they prove to be carefully made implements belonging to Palaeolithic cultures in the industries of which well-developed flake-tools feature. In this connexion I have already mentioned a concave scraper achieved by retouching the edge of a wide notch in the side of a naturally divided Bunter quartzite pebble from the gravel of the Higher Boyn Hill Terrace at East Burnham, Bucks. (*Antiq. Journ.* xix, 175 and pl. xli, no. 36).

An Early Claudian Burial found at Colchester.—Mr. M. R. Hull sends the following note: A large number of excavations has taken place within the last two years in Colchester and its neighbourhood, with few results from an archaeological point of view, but in 1940 the work of preparing a shelter on the south side of St. Clare Drive, Colchester, a few yards south-east of the late Mr. Philip Laver's house, revealed an unusually fine grave group which has been kindly presented to the Colchester and Essex Museum by Mr. O. S. Locke, the owner of the soil.

In the following description reference is made to type-numbers, etc., to be used in the forthcoming report on the Colchester (Sheepen) excavations of 1930–9, to be published shortly as a Report of the Research Committee, under the title *Camulodunum* (here also abbreviated *Cam.*).

The objects described probably formed the complete inventory of the grave furniture. All the pottery vessels were regrettably broken by the workmen, but all could be restored, and there are no fragments of any others. According to the workmen the calcined bones were in one of the large jugs but were not gathered up.

The metal objects are ten bronze brooches, remains of one or more bronze armlets, and a piece of iron strapping, presumably from a wooden chest.

It is a remarkable fact that all the brooches are of the group of Continental forms whose standard characteristic is the tubular spring-cover or cylindrical head which contains the spring. None is of British make.

Two similar brooches (fig. 1, 1 and 2, forming a pair, of *Camulodunum*, type X. They are of large size (length 3½ in.) and comparable in beauty and finish to the finest known. The heads are engraved with a similar pattern of lines and punch-marks. The ribbed or reeded bow and tail are, as often on the better class examples, e.g. *Camulodunum*, nos. 70, 71, enamelled in alternate flutings. The colour of this enamel remains uncertain, but a well-preserved portion on one of ours shows that it was minutely beaded on top. The tail and disc in our case are made in one piece and appear also to have been cast in one piece with the bow (*Camulodunum*, type X_B). The disc has two large marginal grooves with knurled ridges, and the central lunular space is deeply engraved with the conventional pattern usual in this position. The open-work rosette, being made of thin sheet bronze, has perished, leaving only

part of its centre. There is one bronze bolt under the bow, held in position, as usual, by an iron spring. The catch-plate has in one case three, in the other two, ornamental piercings. Neither bears a maker's name. On the back of one is the clear impress of a fabric resembling linen.

The best brooches of this class often bear makers' names, see *Bonner*

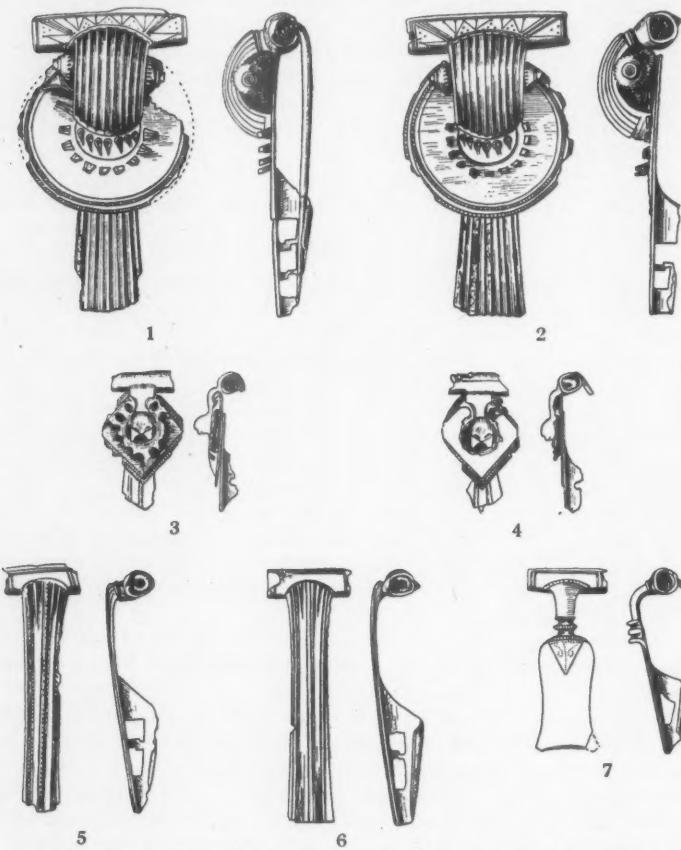


FIG. 1. Brooches from Early Claudian burial group from Colchester. (1)

Jahrbücher, xciv, 81 ff., *Korr. Bl. d. Westd. Zeitschrift*, xiv, 25 ff., and *C.I.L.* xiii, 10027, 111, 129, 132, and perhaps 125, 130, etc. All from the Rhine and Moselle districts except 127—*B.M. Cat. Bronzes*, 2089, figs. 38-9, ? Lyon. See *Camulodunum*, under this type, where Xa is dated from grave groups from Augustus to Claudius, and it is concluded that none of them found in Britain need necessarily be a pre-conquest import.

Two brooches (fig. 1, 3 and 4), again a pair, of the smaller form of the

same type, *Camulodunum*, X_B, iii. The bow is a bar, moulded in relief with rosette, plate (here, as often in these small brooches, of rhomboid shape), and foot all riveted or brazed together in the centre. The heads are almost plain. The curiously shaped bow is really a stylized lion, more recognizable in one at Alesia (Almgren, *Montelio*, 244, fig. 3), and Minden a. Sauer (*Trier Jahresbericht*, vi, taf. iv, c, 8), cf. *Camulodunum*, no. 76, others at Bonn and Vindonissa.

The plates have two marginal grooves, with knurled ridges, and the rosettes, which are again damaged, are of simple pattern. The tails have each two grooves or flutings, and the small catch-plates each a small round hole. Length 1½ in.

The date is similar to that of the previous pair.

Three large brooches of the 'Langton Down' type, Camulodunum, type XII_A, two apparently a pair, 2½ in. long (fig. 1), 5, the third 3 in. long (fig. 1, 6).

The cylinder has a rectangular ornament of double grooves. The bow is elaborately reeded, and often knurled, as in our pair. The bow is long, straight, and flat, with a long, pierced catch-plate.

This type spread in the early first century A.D. from Gaul to Germany and Britain (*Lydney*, pp. 70 ff.), *Camulodunum*, under type XII, where an additional list of examples will be found. Like type X_B it is to be dated from Augustus to Claudius, and it was plentiful in the latter period, for over fifty examples were found at *Camulodunum*.

Three brooches, all quite similar, of tinned bronze (fig. 1, 7). The type is *Camulodunum*, XIII, where no. 113 is a variant, the standard type being illustrated by no. 114, which is from grave 1 at Andernach. The form is nowhere common and has not been found in this country before. It is almost the only member of this tubular-headed group to be usually tinned.

Our examples are well preserved, the heads marked out with grooves like the previous type and divided from the bow by a sharp moulding, which is knurled. The bow is short and narrow, roundly convex, divided from the foot by three very bold, knurled ridges. The foot is a broad flat plate with slightly incurved sides and end and with a raised triangular space near the bow decorated with a pattern of minute punch-marks. The catch-plate is triangular, with one triangular opening. Length 2½ in. The dating is again probably Augustus–Claudius.

The remains of the bangle or torc are of thin sheet bronze hammered to a broad, flat, oval section. The outer side was finely grooved longitudinally, with a minute hammered pattern down the centre. One end is narrowed for ¼ in. to slide into the other, and at this junction each end has a transverse fluting between grooves. The fragments suggest that there were two similar bangles each of about 3 in. diameter.

The fragment of iron is from a strap 1½ in. wide. It is 3½ in. long, with remains of three nails and the impress of wood on the back. Presumably part of the wooden cist in which the group was deposited.

The pottery vessels are all of superior ware, either the red-glazed *sigillata*, or the fine Gallo-Belgic imitations of it, both the red polished *terra rubra* (t.r.), and the black polished *terra nigra* (t.n.).

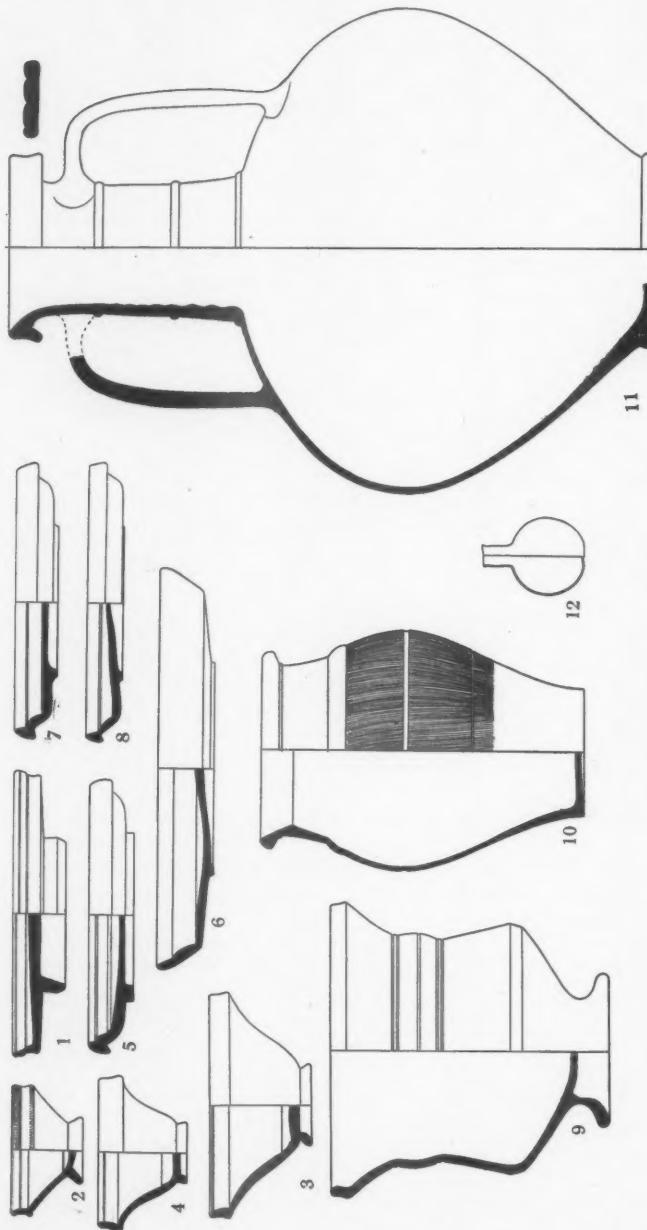


FIG. 2. Pottery from Early Claudian burial group from Colchester. (4)

Small platter, form Drag. 17 (fig. 2, 1), which was found at Camulodunum in both Arretine and South Gaulish ware. The present is a borderline case and might perhaps be either. This small size was much the commoner at Camulodunum (over 100 as against less than 50 of the larger), and few of them were Arretine (only 1 definite and 6 possible). The stamp, of small neat letters in a frame, is damaged. It may read V . . . VI or X . . . XI; the space seems too long for XANTHI, but some form of his stamp might fit.

Small cup, form Loeschke 8 (fig. 2, 2), South Gaulish ware, stamped CRESTI. It has all the characteristics of the Augustan examples from Haltern. Both Augustan and Claudian features are found among the seventy or more examples found at Camulodunum, where the latter naturally predominate and Arretine examples are scarce. Ours is probably Tiberian.

Cup of terra rubra (fig. 2, 3), form Cam. 56, comparatively low and wide, with short and very angular rim. Pinkish-red ware with darker polished interior surface. The stamp in the base only partly legible, but without doubt reading AR in frame. Foot-ring completely missing. Date: Augustus–Claudius.

Another cup of the same form (fig. 2, 4), but smaller, and taller, the rim nevertheless still low and angular. Ware similar, but more decayed. The stamp is legible but senseless, apparently IXII or similar. Height $2\frac{3}{16}$ in., diam. $3\frac{1}{2}$ in. The ratio of height to diameter in this case is that of the Claudian examples of this form at Hofheim, and of cups at Camulodunum and Silchester, which are probably of Claudian date.

The form (56) is present in great numbers at Camulodunum in both *terra rubra* and *terra nigra*, the former almost always with low angular rim, the latter with tall, upright rim. Although much must be due to source of supply, one feels that generally the red cups are earlier than the black, and low rims earlier than high ones.

Small platter of terra rubra, form Cam. 7 (fig. 2, 5). Bright red ware with slightly darker surface. The central stamp unfortunately broken out. Diam. $6\frac{7}{16}$ in., height $1\frac{1}{16}$ in. Of about seventy-five vessels represented at Camulodunum nearly all are *terra rubra*. The earliest follow the outline of the Arretine platter Loeschke 1A very closely, but ours cuts the lowest interior moulding to little more than a shapeless offset-rib, bringing it into what is typologically the latest class of this form. The platter is to be dated Tiberio–Claudian.

Large platter of terra nigra, form Cam. 12 (fig. 2, 6). Although a large platter the stamp is central, in itself a late sign. The stamp is imperfect and appears to be a copy of a stamp in two lines. This would make it moderately late, but it is not certain that if complete it would not have been legible. The form is the commonest of the common platters at Camulodunum, and is numbered in hundreds. It is remarkably rare on the Continent. Almost absent from Haltern and completely so from Hofheim, its chief incidence should fall in the Tiberio–Claudian period, but here again the question of source of supply must be allowed to be of great importance.

Two small platters in terra nigra, form Cam. 8, stamped MELOS (?)

and **TORNOS/VOCARI** (fig. 2, 7, 8). Perfectly typical of this form which occurred in hundreds at Camulodunum and which is very well represented wherever Gallo-Belgic ware is found in quantity. It is not so early as form 7, and its lateness is emphasized by the frequency of its copies in Roman grey ware.

Pedestalled beaker of terra rubra 3, form Cam. 77 (fig. 2, 9). This belongs to a large and varied class of beakers and bowls in various qualities of *t.r. 3*, which, though frequent in Rhenish museums, has not received adequate notice prior to the Camulodunum Report. The constant feature is the pedestal foot, while the body has many very different and elegant forms. The origin is betrayed by a grey copy of an Arretine crater found at Oberaden (cf. the cups form *Cam. 53* at Oberaden), and another in Bonn Museum from Xanten in beautiful blood-red *t.r.* (*Cam.* type 71). The body-form of ours is not common and is perhaps the least elegant of the series. A complete example in Trier Museum (3136) is illustrated in the Camulodunum Report, and it has the greyish colour coating of the Oberaden vessels. Another is drawn from fragments minus the rim; another rim was found in pit D8. At Camulodunum the date is Claudian, but some of the Rhenish examples are earlier.

Butt-beaker in very thin white ware, form *Cam. 113* (fig. 2, 10), of which it is perfectly typical. This is one of the commonest types at Camulodunum and the remains are literally innumerable. The same outline occurs at Aylesford (*Arch. lii*, pl. IX, 1), but in pale brick-red ware, which classes it with form *Cam. 119*. The real prototype of ours appears at Haltern and Trier in a peculiar greyish-buff ware, red coated inside, which occurs at Camulodunum on the imported forms *Cam. 168, 196, 197, 205*.

In Britain fragments of *Cam. 113* have been found at e.g. Oare (Wilts.), Braughing, and North Ferriby and Chichester. The date is Tiberio-Claudian.

Two large two-handled jugs or flagons, form *Cam. 161* (fig. 2, 11), of which they are quite typical, save that the second has a rather more sloping shoulder than usual. The ware is thin, fine pipe-clay, and the cylindrical neck, neat foot-ring, and upright handles are all very early in character.

The type belongs to the first half of the first century A.D. and is well known, although it does not appear to have been reported from any site in the quantity found at Camulodunum. At Haltern it was scarce and Loeschke figures only two, one with reeded rim, which also occurred here. Some are very large, e.g. one from another burial found near the present one, figured in the Camulodunum Report, others at Haltern, Trier, and Bingen. The smaller ones are frequently found in graves with Gallo-Belgic vessels (as here) at Trier, Grugelborn, Roden, Coblenz-Neuendorf, Urmitz, Lebach, etc. The type was in use from Augustus to Claudius. At Camulodunum the number represented was very large, possibly running into four figures.

Three fragments of a small glass bottle or phial of thin blue glass, with pear-shaped body and short, cylindrical neck (fig. 2, 12). The shape, though not so common as the usual tall glass phials found in Roman graves, is well known. The height was probably about 3 in.

Note on the potters' stamps:

CRESTI. There was an Arretine potter of this name, working as a slave to the later potters of that locality. In a subsequent period of independent activity he may well have been one of those who moved to Gaul and founded the famous South Gaulish *sigillata* industry. The activities of these



FIG. 3. Burial group from Colchester

founders, their names and workshops, are at present one of the main fields of interest in research on *sigillata*, and much of the ware found in the north-west provinces of the Roman Empire, hitherto described as of Italian origin, may ultimately have to be assigned to these pioneer potters.

AR (in frame). Three examples from the same matrix are all on *t.r.* cups from *Cam. 56* and were unstratified at *Camulodunum*. Apparently so far only found here, but cf. *C.I.L. 10010, 160 (OF.AR)* and *168 (ARI)*, but these are probably on red glazed ware.

MELOS. Three examples at *Camulodunum*, all spelt **MILOS**. Not previously recorded, but cf. *C.I.L. loc. cit. 1336*, where some of the stamps may be Gallo-Belgic.

TORNOS/VOCARI. Six times at *Camulodunum*. *C.I.L. loc. cit. 1929* and *1930*—**TORNO**, Trier, Andernach, Gondorf, and **TORN** Mainz. Double line as ours at Cambrai, Trier, Metz, Bavai, Kobern, Andernach, Weisenau, Le Châtelet, Bechtheim; add Foxton, Cambs.

The Fort at Oldaport, near Modbury, South Devon.—Mr. E. M. Jope and Mr. R. I. Threlfall contribute the following note: At the suggestion of Mr. F. Cottrill, M.A., a brief trial excavation was conducted in July 1938 on the 'fort' at Oldaport Farm, near Modbury, south Devon.¹ Although

¹ F. Cottrill, *Proc. Dev. Arch. Explor. Soc. ii (1936)*, 213.

the excavation yielded no finds which might give an indication of the date of the defences, the structural remains were of some interest.

Fig. 1 shows the topographical position of the 'fort' near the head of a very poorly navigable estuary ten miles east of Plymouth. The natural

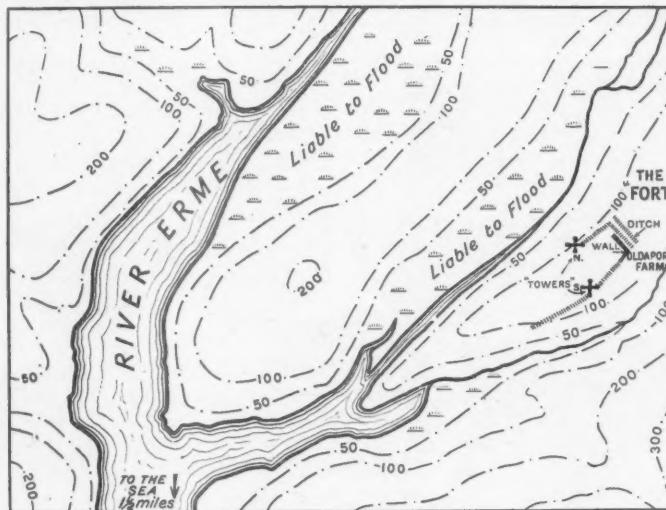


FIG. 1. Site map

features of the promontory afford little defence and are but poorly reinforced by the existing artificial defences, the ditch and wall to the north-east being the only clearly visible remains. Sir John Dryden, however, noted remains of 'two towers' (fig. 1) when he visited the site in 1863.¹ While excavation substantiated the probable antiquity of the north-east defences, the walling found where Dryden observed the south tower suggested the remains of a comparatively recent dwelling-house. The site of the north tower was not excavated.

The main wall of the north-east defences, the rubble and mortar core of which was already visible, was found to have a good ashlar facing, still standing in some places five courses high. The wall was originally 7 ft. thick and against its inner face lay a ramp of piled shillet. The thickness and general character of this walling make its ancient origin probable, and the mortar from its interior, while not resembling proper Roman mortar, is not at all like the medieval mortars of the south-west. It is pinkish in colour, very soft, and contains little grit or small pebbles.

A section of the ditch showed that it was rock-cut into the natural shillet and that it had been silted to a depth of 4 ft. in the middle. It will be seen (fig. 2) that the deeply cut ditch extends over the south-eastern half of the

¹ Unpublished MSS. in Northampton Museum: Mr. Cottrill has shown me his transcription of these notebooks.

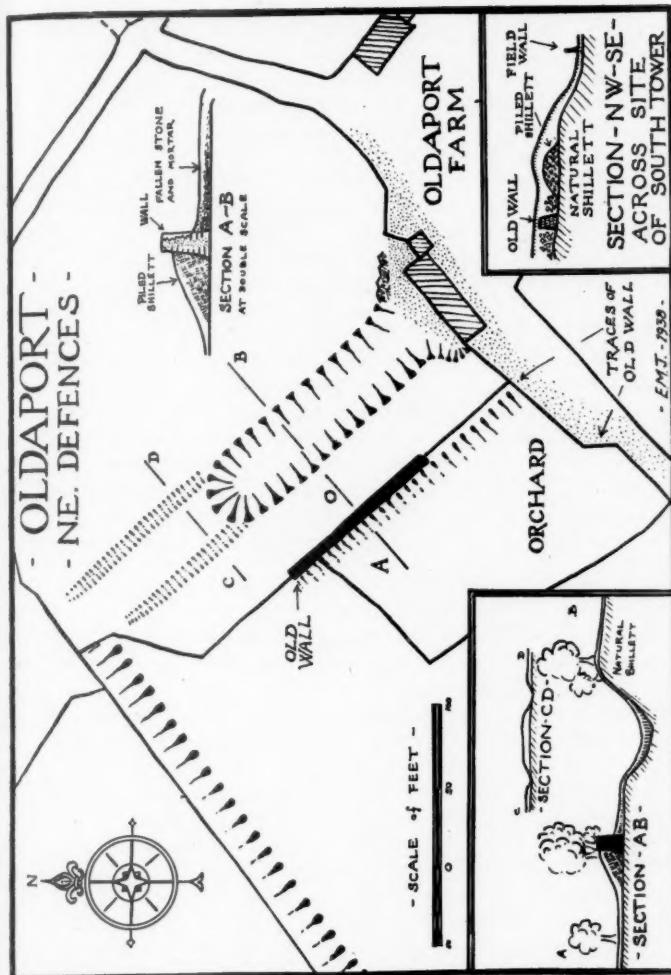


FIG. 2.

ridge only, and to the north-east it is marked merely by two shallow ditches about 8 ft. wide and 1 ft. deep, continuing the line of its edges. These look suspiciously like marking-out trenches for the continuation of the ditch, which as it stands has no defensive significance. Partially completed earth-works have been recognized in recent years,¹ and although this is an interpretation to be adopted only on very definite evidence, it seems justifiable to consider Oldaport among their number.

A notable parallel to Oldaport is Coludesburgh, on St. Abb's Head, Berwickshire. Here there is a wall, 'built of rough stones cemented with hard mortar', across the narrow neck of the promontory;² and in front of the masonry was a ditch, exactly as at Oldaport. At Coludesburgh a monastery was founded in the middle of the seventh century, which was burnt down again probably before A.D. 700. It is also mentioned under the name Caer Golud in the Book of Taliesin, which further indicates its Dark Age significance. Mr. Cottrill has already discussed the documentary evidence, leading by elimination to the suggestion that Oldaport fortifications may be of Late Roman or Dark Age origin.³ The topographical position of Oldaport is, however, less understandable than that of Coludesburgh, which is much more strongly defended by natural features. It is very curious that such a fortification as Oldaport, presumably designed for defence against sea attack, should have been placed at the head of what is now, and probably always was, one of the least navigable of all the estuaries on the South Devon coast.

¹ Ladle Hill, Hants, *Antiquity*, v (1931), 474.

² *Antiquity*, viii (1934), 202.

³ Cottrill, *loc. cit.*

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Obituary Notices

SIR ARTHUR EVANS. Past President. Born 8th July 1851; died 11th July 1941.

I

Although the revelation of Minoan culture, in which Evans led the way with his excavations at Knossos, was the most spectacular and revolutionary of archaeological discoveries, it was not the intention of excavating that first took him to Crete. He was brought to this particular spot in his wide prehistoric range by his interest in gems, by which, as a numismatist and a collector, he was always attracted. During a visit to Greece in 1893 he came across some of the prism-seals engraved with hieroglyphs which are now a numerous and well-known class but had received no attention before that time. He was told that they came from Crete, and found on inquiry that similar gems in museum collections had the same source, so far as any source was known. The purpose of investigating this script and establishing its relations with those of Anatolia, Cyprus, and Egypt took him in 1894 to Crete, where he explored the eastern half of the island, secured or recorded a satisfactory number of gems, and was impressed by the importance of the greater prehistoric monuments, most particularly by the walls of Goula in Mirabello and the site of Knossos near Candia. Some large stones of a standing wall at Knossos (subsequently identified as that of the Southern Terrace of the Palace) bore linear symbols which had been observed by W. J. Stillman in 1880 and had encouraged Minos Kalokairinos of Candia, with whom Evans visited the site, to make a small and not very damaging excavation in the Magazines in 1878. The disaster of a premature excavation by Schliemann a few years later had been averted by the Turkish Government. The inscribed stones, the certainty that here lay a considerable building of their period, and the traditions indicating the prehistoric importance of Knossos, determined Evans to undertake its excavation, and he took the first step in that direction by becoming a part-owner of the site at the time of his first visit. But his co-proprietors and the Government were unaccommodating, and it was not until six years later, with the establishment of new political conditions, that he was able to acquire the whole.

He began to dig in March 1900. The first season's work established the identity of the building as a palace and produced among many other novel finds large numbers of inscribed clay tablets. The main work of clearing the Palace went on for seven years, with the expert assistance of Duncan Mackenzie, who was mainly concerned with the stratigraphical observations and records, and Theodore Fyfe, who was responsible for the extremely complicated architectural operations and was succeeded in them by Christian Doll. Even in those early years the excavations were extended beyond the Palace to the large cemetery of Zapher Papoura, the built tombs at Isopata two miles away, and the 'Little Palace' to the west of the main building. In later years were added the 'Royal Villa' on the eastern slope, houses on the north and south, the 'Caravanserai' and well-house with the bridge over

the southern stream, the cemetery of Mavrospelio on the hills across the Kairatos, and in 1931 the magnificent 'Temple' tomb on the south road. Evans's exploration of Knossos came to an end in fact only with his ability to go to Crete. Not less arduous and costly than the excavation of the Palace was the structural work which was imposed upon him by the conditions of the site and in which he was constantly engaged. This has been much criticized, and it may be said at once that he carried it beyond what was necessary for protection, but without detriment to the ancient building except as regards appearances. It was evident in the first season that pavements and lower courses of walls in rooms like the Throne Room, where architectural or decorative details had been preserved by the earth covering, must be covered again to protect them from the weather. This was done in the first instance with wood-framed shelters, but wood does not last long in the Cretan climate and it soon became necessary to replace it with permanent materials. The partial collapse of the Grand Staircase, which leads from the Central Court down four monumental flights of stone steps to the Domestic Quarter, was the first occasion for the use of iron and stone in place of wood, and the subsequent introduction of ferro-concrete was an irresistible invitation to Evans to extend the practice, which he had necessarily adopted there, of 'replacing upper elements' and 'making the legitimate process of reconstitution appeal to the historical sense of the unimaginative'.

Provisional reports of each season's work were promptly published in the *Annual of the British School at Athens* or *Archaeologia*, and the final publication, *The Palace of Minos*, much delayed by the war of 1914, began to appear in 1921. Evans had meanwhile devised and published internationally his brilliant scheme of the nine 'Minoan' periods, which has become the basis of chronology in all the Aegean regions. *The Palace of Minos* was designed to be the comprehensive story of the Minoan Age with the excavations at Knossos as its central theme, and not a meticulous account of those excavations. Evans had never an intention of publishing his notebooks. But in his hands the larger subject inevitably passed the boundaries of the design. The projected three volumes, of which the third was to be small and supplementary, had grown into four, or six if separate parts are counted as volumes, by the time it was finished in 1935. In only one respect did Evans not fulfil his purpose, and that the first purpose with which he went to Crete. So far as discovery goes it was amply fulfilled; the finds of inscribed documents in the Palace exceeded all possible expectations, but they have not been fully published. The first volume of *Scripta Minoa*, which appeared in 1909, contains a general survey of the new scripts, their apparent connexions with those previously known in the Mediterranean area, and a complete publication of the hieroglyphic documents. Volumes ii and iii were to contain transcriptions and analyses and photographic reproductions of the two linear scripts and their documents, nearly two thousand in number, but they have not yet been published. The material is doubtless prepared and can be produced by other hands, even if the original documents in Crete have been destroyed or damaged in the German onslaught.

Evans was delightfully at home in Crete, on mountain roads, in camp, in villages, and in his house and garden at Knossos. He lived with his

colleagues in the early days in the Bey's House, the establishment of a former Turkish proprietor in the gorge of the Kairatos. That was malarial, and Evans would in any case have had his own house, the Villa Ariadne, which was in due course built for him by Christian Doll and designed to withstand all the rigours of the local climate, sun, wind, and earthquake. One remembers with what triumph Evans emerged from his basement bedroom on the night of the last earthquake in June of 1926, and demonstrated the immunity of the villa. In 1926 he gave all his property at Knossos, the villa with its gardens and vineyards, and the Palace site, to the British School of Archaeology at Athens, with provision for its maintenance and custody. The villa has been used since then by students of many nations, and will continue to be so used, a living memorial of the personality and achievements of its founder.

E. J. F.

II

Evans's career as a museum official was a long one. He was appointed Keeper of the Ashmolean, then in its original home in Broad Street, in 1884. He planned and carried out, in the face of fierce opposition and lethal apathy, its removal to new buildings, behind the Taylor Institution and what was then called the University Galleries in Beaumont Street, in 1894, and when he retired from its active direction in 1908, after close upon a quarter of a century, the University gave him the title of Honorary Keeper and Perpetual Visitor—that is, member of the governing board—and also appointed him Extraordinary Professor of Prehistoric Archaeology, it being well understood that the Museum, which he had in point of fact refounded, would continue to benefit by his affectionate, enthusiastic interest, as it did increasingly and without interruption during thirty-three more years; his last visit took place only a few days before his death.

When he took office the Ashmolean was derelict. Many years before the Bodleian had carried off its valuable library of manuscripts; the coins, medals, and plaquettes followed. It had been remodelled as a natural history museum by the brothers Duncan, Keepers in the thirties of the last century, but had been superseded and seen its collections absorbed by the University Museum. As a final degradation, by a process very familiar in Oxford, the principal galleries, built for and solemnly dedicated to one great benefaction—due immediately in this case to Ashmole and less directly to the Tradescants—after being stripped of their contents, were handed over to a fresh fashionable fetish, that of examinations.

Evans's first task, and it lasted throughout his Keepership, was to gather together not only the remains of the Ashmolean antiquities, many of them disinterred from cellars under the pavement of Broad Street, but the University's other archaeological possessions, scattered in the Bodleian and other buildings. He recognized their potential value as the kernel of a comprehensive Museum of Archaeology and Art such as it was imperative that Oxford, with the broadening of classical and historical studies, should possess. But, in view of the less than tepid interest awakened by his earliest efforts, it seems unlikely that even he would have succeeded in his great

project if he had not had the good luck to annex and inspire a benefactor—Dr. Drury Fortnum, who was looking out for an appropriate recipient for his magnificent collections with a substantial money endowment.

The interests of ancient archaeology, in so far as it was represented by a small series of casts from antique sculpture, the Arundel Marbles, and a few Greek vases and bronzes, either presented by Chambers Hall or bought, in a moment of aberration, from the Roman dealer Castellani, were at that time in the hands of an exclusive and narrow-minded oligarchy which controlled the pictures and drawings in the University Galleries. This committee had induced the University Chest to buy, with very vague ideas about the use to which it might be put, a large plot of garden ground behind the Galleries building. After severe struggles and complicated bargaining Evans and Fortnum captured it as the site for their new museum. It is to this stroke of policy that Oxford now owes the existence of one of the leading archaeological and artistic institutions of the world, immeasurably surpassing in scope the wildest ambitions of those by whom the land had been acquired. None the less, it was not until 1908 that Evans procured the statutory union of the different departments and the redistribution between them of revenues which hostility had forced Dr. Fortnum to assign to archaeology only. This generous act was highly characteristic of Evans, a whole-hearted believer in the growth of civilization through tradition and the unbroken continuity of cultural history.

The step in the co-ordination of the University's possessions, which was always foremost in Evans's mind and one of the first he proposed, was only finally completed, after prolonged obstruction, when he had laid down office, the creation of a coin-room to hold the Bodleian collections, themselves incorporating the series derived from Ashmole. In this he was greatly helped by the munificence of his own college, Brasenose, and the readiness since shown by colleges owning cabinets of coins in depositing them in the Ashmolean has confirmed the practical value and acceptability of his idea.

The increased space of the new building was quickly filled. Greek vases, terra-cottas, and bronzes were collected by him during repeated expeditions to southern Italy and Sicily, notably to Taranto and Gela, and also in Athens. Yet more came through his association with Sir Flinders Petrie and his pupils and successors, so that for many years a preponderating share of the antiquities excavated by the Egypt Exploration Fund and cognate bodies was made over to the Ashmolean. Predynastic objects and those illustrating the early commerce of Egypt with Crete interested him especially, and it is owing to this that the Museum is exceptionally rich in what may be called key-specimens in those classes.

The early years of this century saw the rapid growth of the Minoan collection built up round the allotment made to Evans by the Greek Government from the results of his own excavations at Knossos and presented by him to the University. To this section he naturally gave particular care, constantly adding to it in later years. As late as 1939 he undertook a complete rearrangement of the collection, lavishly illustrating it with reproductions, plans, photographs, and drawings from his own vast store of material. Many other parts of the archaeological collections received the same

fostering attention. In short, the honorary offices conferred upon him on his retirement were to him anything but sinecures; only the difficulties of the times put an end to his attendance at the meetings of the Visitors in his last years.

Evans's benefactions to the Museum, numerous and important as they were, can only here be sketched in the broadest outline. During his term of office he repeatedly supplemented the exiguous funds allotted to the Museum's upkeep by contributions either towards special purposes in his scheme of development or towards the acquisition of particular *desiderata*. Later he came forward on many occasions with the same open-handed generosity, in one case by way of protest against what he considered callous disregard of another great benefactor.

His benefactions in kind were on the same munificent scale. The Minoan collection alone with its culminating gift of many valuable specimens, above all of his unrivalled series of seal-stones and gold rings from Crete and the mainland, would alone have earned him a lasting tribute of gratitude. But other sections, too, were similarly enriched, especially by large additions from the great collections inherited from his father Sir John Evans. From that source at different times he presented to the University Roman pottery, Anglo-Saxon jewellery and allied antiquities, and the extensive series of Stone and Bronze implements.

The inauguration of the Coin Room in 1921 Evans marked by the gift of his father's English historical medals, and at other times he added groups of Greek, Roman, ancient British, and Anglo-Saxon coins. By his will the Museum has received valuable numismatic and archaeological additions besides pictures and the first choice from his rich antiquarian library.

RALPH HARE GRIFFIN. Born 30th April 1854; died 20th August 1941

Ralph Hare Griffin died at The Warren House, Micheldever, on 20th August 1941. He was born on 30th April 1854 at Ospringe in Kent, a county for which he always had the greatest affection. His father, William Nathaniel Griffin, who was Senior Wrangler in 1837, was elected to a Fellowship at St. John's College, Cambridge, in the same year; he was an active member of the Cambridge Camden Society, of which he was President in 1843-4. In 1848 he was presented to the college living of Ospringe, where he remained until his death in 1892. His son Ralph entered in St. John's in 1873, but remained only two years. He became a Barrister-at-Law and was a member of the Inner Temple. From 1890 until 1920 he held the post of Registrar of Designs and Trade-marks. In 1921 he became Secretary of our Society, a post for which he was peculiarly well fitted, for with his wide interests and learning, his stately yet benign manner, and his shrewd judgement tempered by true kindness, he might have served as the ideal type of a savant.

Shortly after the last war Griffin undertook the arrangement of the Cambridge Antiquarian Society's collection of rubbings of monumental brasses in the Museum of Archaeology and Ethnology, thus beginning a

work which he continued until increasing infirmity prevented his travelling about. Helped by a band of assistants, mainly undergraduates, he sorted out a vast amount of material which had been given at different times to the collection, discarding many rubbings which according to his high standard were inadequate or even misleading, and classifying and recording those that were retained. Many of these rubbings were unlabelled, and their classification could not have been carried out without a vast knowledge, such as few besides himself possessed. At about this time our late Fellow Mill Stephenson brought out his great *List of Monumental Brasses in the British Isles*, a work in which Griffin's knowledge and help were always at his old friend's disposal. The galley sheets of Stephenson's *List* were brought to Cambridge and mounted in three folio volumes, with plenty of space for the subsequent discoveries which it inevitably stimulated, and these form the Catalogue of the Cambridge collection. Such of these discoveries as were available at the time were incorporated in a *Supplement* which Griffin and his friend, our Fellow M. S. Giuseppi, subsequently prepared and distributed to the subscribers to the *List* in memory of its author. From the Catalogue at Cambridge a list of wants was compiled, and a series of expeditions began in which Griffin, generally taking with him some of his friends and his chauffeur George, who proved a most able photographer and apt helper, visited many parts of the country for the enrichment of the Cambridge collection. The work continued apace, and the collection increased rapidly until in 1936 it contained adequate rubbings of over three-quarters of the brasses in the British Isles, and became what he meant it to be, a national record, whose value we can only now begin to appreciate in these days of senseless and wicked destruction. In his efforts to complete the Cambridge collection he did not forget our own, and during his expeditions took every opportunity of filling its gaps.

Much space has been given to his work on brasses because it took up much of his time, but it was only one of many subjects of which he had a rare knowledge. Mention must be made of his interest in heraldry and in the great families of the Middle Ages, an example of which was given in his monograph on the bosses of the Canterbury Cathedral cloister. His love of medieval buildings was seen not only in his intolerance of the ignorance and neglect too often shown by their proper guardians, but on the positive side by years of active and devoted service on the Canterbury and London Diocesan Advisory Committees.

His generosity was unbounded. Possessed of considerable means, he did not collect the objects which he loved for himself, but spent a great deal and took infinite pains to ensure that such things found their most suitable home, where they would be seen and properly cared for. But the full extent of his benefactions will never be known, because he rarely mentioned such things. He gave many notable pieces of European porcelain to the Fitzwilliam Museum, as well as musical scores in the handwriting of some of the most famous composers. He rarely visited the University Library or that of his old college without carrying with him some rare book which he thought should find a home there.

Early in 1938 Griffin had an illness which put an end to most of his

activities and from which he never fully recovered, but he was always glad to see his many friends at his house in Circus Road, and his interest in the news they could bring him of the things he loved was as strong as ever. It was a great sorrow to them, as it must have been to him, that the war made it difficult for some and impossible for others to visit him in his last days.

L. C. G. C.

Reviews

The Writings of Robert Grosseteste, Bishop of Lincoln 1235-1253. By S. HARRISON THOMSON. $5\frac{1}{2} \times 8\frac{1}{2}$. Pp. xv + 302. Cambridge: at the University Press, 1940. 21s.

This *catalogue raisonné* of the works attributed to Grosseteste has been compiled with the most sedulous care and, although the first serious attempt at a list of the kind, is unlikely to be superseded in the future. The author has worked with signal ability and critical skill. An examination of some 2,500 manuscripts in 140 European libraries has produced results beyond expectation in the discovery of new sources and in the verification of evidence supplied by those already known. A full introduction includes notes upon previous bibliographers of Grosseteste from Boston of Bury to Zinner's catalogue of his astronomical writings, the principal manuscript codices of his works, twelve in England, six in Italy, and two at Prague, the handwriting of Grosseteste, with its strong resemblance to the Lincoln chancery script in which Professor Thomson sees its obvious parentage, manuscripts at Cambridge, Oxford, Lincoln, Durham, and Shrewsbury which seem to have belonged to Grosseteste, and the question of his knowledge of Hebrew. The list which follows gives an account of over 200 works, in addition to collections of sermons, letters, and *dicta*, a few of which are lost or untraced. Of the rest 120, on a wide variety of subjects, are accepted as genuine.

The fame of Grosseteste as a scholar is somewhat overshadowed by his reputation as a bishop, ecclesiastical statesman, and administrator. But to medieval scholars the authority of 'Lincolniensis' as philosopher, theologian, and man of science was a living reality; and Professor Thomson tells us that he was first stimulated to this fruitful piece of work by the allusions to Grosseteste in the writings of Wycliffe. The student has now an opportunity of realizing the full range of Grosseteste's accomplishments, and the edition of Grosseteste's *inedita* on which this untiring investigator is now engaged in collaboration with others will extend our detailed knowledge of one of the most prolific and best-equipped medieval authors. The text of the bibliography is followed by indices of names, codices, and *initia* of manuscripts, the last including *initia* of single paragraphs, secondary incipits, and scriptural texts. Completeness is given by two plates of photographic facsimiles from manuscripts, and a book which is a monument of devoted labour is most appropriately dedicated to Dr. Andrew Little.

A. H. T.

The Religious Houses of Medieval England. By DOM DAVID KNOWLES. $5\frac{1}{2} \times 8\frac{1}{2}$. Pp. viii + 167. London: Sheed and Ward, 1940. 8s. 6d.

This carefully compiled list of religious houses in England is more complete than any previous attempt of the kind, including as it does houses of all orders. It forms a supplement to the author's larger work, *The Monastic Order in England*, previously issued, and is prefaced by an essay on monastic

history which, written clearly and gracefully, conveys much necessary information in a small space. This essay deserves special praise for the clearness with which it focuses the successive stages in the development of English monasticism, its growth in the period that followed the coming of Augustine, its temporary extinction during the era of the Danish invasions, its revival in the age of Dunstan and Ethelwold, the impetus given to it by foreign Benedictines after the Conquest, the Cluniac and Cistercian movements, the expansion of the canonical orders, and the coming of the friars. Although the essay nominally surveys its subject until the final dissolution of monasteries in 1539, it touches very lightly upon the later medieval centuries, and it is with the origins and the progress of the system to its high-water mark that its author is chiefly concerned.

The labour expended over the long lists of monasteries of monks, canons, nuns, and friars has been great, and the copious notes appended to each list show with what care such questions as the names of founders, approximate dates of foundation, and in some instances the existence of alleged settlements have been weighed. On the whole, the smaller foundations whose conventional status is uncertain have been generously treated, and we notice here and there cases in which the benefit of a doubt has been given. Synonyms for the names of houses are also included, together with names which have hitherto defied identification, such as those of the mysterious priories of Austin canons at 'Cheleburne', 'Pynkney', and 'Modstedwall'. There may be differences of opinion about some of the inclusions, but no reader will fail to recognize the pains which have gone to the making of an extremely useful record. It is possible that the *Calendars of Patent Rolls* and kindred publications might have been consulted more freely than seems to have been the case, particularly with regard to lists of 'alien priories' and the difficult task of defining and distinguishing between the character of individual foundations; and the summary catalogue of authorities shows an absence of works dealing specially with monastic history in the fourteenth and fifteenth centuries, from some of which helpful information might have been obtained.

Though occasionally the forms of names may need slight correction, errors are few and far between. The names of foreign houses given in the lists of alien priories observe no uniformity but hover somewhat timidly between French, English, and Latin. Thus Saint-Sever in the diocese of Coutances appears also as St. Severus, Fougères is certainly preferable to 'Fulgers', Montreuil to 'Monsterel', and Saint-Calais to the hybrid 'St. Carilef', which unfortunately has become too closely attached to a famous bishop of Durham to be easily dislodged. But, whatever faults we may find, the virtues of the book outweigh them. Seldom has the relation of a bishop to a monastic chapter, as it was contemplated and as it actually was, been so clearly accounted for as in the prefatory essay, and there are many students of monasticism to whom the notes on the Trinitarians and Bonhommes, pointing out that their proper place is among orders of canons rather than friars—a fact for which official documents afford plenty of evidence—will provide a needful reminder.

A. H. T.

Holy Images, an inquiry into idolatry and image-worship in ancient Paganism and in Christianity. By EDWYN BEVAN. $5 \times 7\frac{3}{4}$. Pp. 184, with 4 plates. London: George Allen and Unwin, 1940. 7s. 6d.

The four lectures contained in this volume formed part of the course of Gifford lectures delivered by Dr. Bevan at Edinburgh in 1933 and are issued as supplementary to his *Symbolism and Belief*, in which the main body of the course has been already published. The importance of their theme to the anthropologist and the theologian is obvious, and from these points of view Dr. Bevan's treatment of the development of the reverence paid to images and of the variety of opinion and doctrine involved in the practice is highly valuable. The book serves a most useful purpose as a clear and concise survey of its subject by a scholar well armed at all points and endowed with the gift of lucid exposition. The influence of image-worship on the history of art naturally comes into consideration as an incident in its progress; but into this Dr. Bevan does not enter at length, nor does he enter into theories of the origin and mutual reactions of various types of religious representative art. This side of the question, however, supplies him with illustrations, and the book contains four excellent photographic reproductions, one of a figure from the frescoes found in the excavation of the third-century synagogue at Dura on the Euphrates. The others are the early carving of the Crucifixion on an ivory box in the British Museum, towards the end of the fourth century, the statue of the Good Shepherd, the most beautiful example of the beardless type of Christ, in the Lateran basilica, and a scene from the life of Buddha in the Amravati sculptures, also in the British Museum. This last has special significance as an instance of the reluctance of early devotees to give human shape to the divine figure, and the Buddha is represented merely by a pair of footprints.

A. H. T.

Early Churches in Palestine. By J. W. CROWFOOT. $10\frac{1}{2} \times 6\frac{1}{2}$. Pp. xviii + 166, with 30 plates. London: Milford, 1941. 8s. 6d.

This well-documented account of the earliest Palestinian churches summarizes a mass of information much of which has accumulated during the last twenty years. Mr. Crowfoot, a former Director of the British School of Archaeology in Jerusalem, is the excavator of Christian Jerash and of other sites. In this capacity he has taken a leading part in research in this field, and his familiarity with the sites and the remains described makes him particularly well qualified to undertake the work of co-ordination. The volume contains an excellent series of plans and photographs, and reconstructed drawings illustrate the more important features.

The first stage, preceding the Peace of the Church, is not represented in Palestine, for the author rightly rejects the claim that the earliest building at Emmaus should be assigned to the third century. Of the Constantinian sites sufficient is known of the Church of the Nativity at Bethlehem and the basilica of Eleona on the Mount of Olives to supply data for the reconstructions reproduced. The Church of the Holy Sepulchre at Jerusalem still incorporates fragments of the original building which allow us to control

the literary descriptions and show that the site was occupied by a great complex laid out on principles similar to those employed by the contemporary architects at Bethlehem and Tyre. Two features may be noted in these plans: their small scale and their desire to obtain a comely architectural disposition, although this involved a drastic treatment of the holy site itself. Both are borne out by the historical evidence which reveals the strength of the non-Christian element in Palestine throughout the fourth century and the comparatively late development of the pilgrimage to the cradle of the Faith.

From the fifth century onwards remains become more common. The churches of Palestine form a group within the general type spread over the whole Mediterranean area. They are marked by local variations, notably the use of fine mosaic pavements, a form of decoration unknown in Egypt and undoubtedly fostered by the wealth of local material available in Palestine. Carvings in stone are relatively few in number and generally poor in quality. The capitals include the uniform series at Bethlehem, which has long been attributed to the church erected by Constantine, but the recent demonstration of Justinianic date is here so well restated that few will be tempted to champion the lost cause.

The number and value of the remains described inevitably turn our thoughts to the splendour that has vanished. Of all the buildings described, only Ezra and Justinian's church at Bethlehem stand erect and the latter remains 'indescribably forlorn'. The brilliant mosaics of the walls and domes and the wealth of precious metals reflected in Christian and Moslem authors have gone for ever. And with this destruction iconographic material is almost entirely lacking. The representations of the provincial councils of the church on the north side of the nave at Bethlehem are a fascinating exception, but their late character, reflecting the art of the Umayyad age, serves only to emphasize the dearth of earlier material. For this the pavements form no real substitute. They are essentially secular in character and the majority exclude all representational art. Masterpieces like the Nilotic scenes in the transepts at Tabgha have their own interest, but they afford no better clue to the canon and traditions of the lost wall-paintings than do the poorly executed scenes of religious significance which make an occasional appearance in the latest pavements.

C. A. R. R.

Periodical Literature

Journal of the British Archaeological Association, 3rd ser., vol. 5:—The Medieval stained glass of the East Harling and North Tuddenham Churches, Norfolk, by Rev. C. Woodforde; The Abbey of Bec-Hellouin and its English priories, by Miss M. M. Morgan; Tonbridge Castle, by W. Douglas Simpson; Excavations on the site of Sempringham Priory, by Dr. Rose Graham and H. S. Braun.

Transactions of the Bibliographical Society, new series, vol. 22, no. 1:—Medieval writing-masters, by S. H. Steinberg; Sir Hans Sloane's printed books, by J. S. Finch.

The Burlington Magazine, October 1941:—Ornamental Khmer Bronzes, by R. le May; Two Charles I silver bindings at Cambridge, by E. A. Jones; The Tickhill Psalter, by F. Wormald.

November 1941:—Anglo-Saxon London; Wall Paintings at Durham and Easby, by E. T. Long.

Folklore, vol. 52:—Pre-Christian survivals in connexion with Crosses in the North of England, by E. M. Guest.

The Genealogists' Magazine, vol. 9:—A new Dictionary of British Arms, by A. R. Wagner; Lincoln Diocesan Records as sources for the genealogist, by Miss K. Major; Apprentices and Freemen of the Armourers Guild from 1416 to the end of the reign of Edward VI.

The Geographical Journal, vol. 98, no. 1:—The site and growth of Paris, by G. R. Crone.

History, June 1941:—The political importance of the Tithes Controversy in the English Revolution, 1640–60, by M. James; Roger Lowe, shopkeeper and nonconformist, by R. C. Latham; A Royal wedding journey through Savoy in 1684, by Miss M. R. Toynbee.

Man, September–October, 1941:—Osiris and the fertility-rite, by G. D. Hornblower.

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Proceedings of the Society of Antiquaries

Thursday, 30th October 1941. Mr. A. W. Clapham, President, in the chair.

Mr. Charles Inge, F.S.A., was appointed a Local Secretary for Southern Arabia.

Professor Sidney Smith, Vice-President, read a paper on the Greek Trade at Al Mina: a footnote to Oriental History.

Thursday, 27th November 1941. Mr. A. W. Clapham, President, in the chair.

A special vote of thanks was returned to Brigadier-General Fane Lambarde, F.S.A., for his gift of a collection of drawings of monumental brasses, etc., mostly from Kent, by Thomas Fisher.

Mr. James G. Mann, F.S.A., read a paper on two fourteenth-century gauntlets from Ripon Cathedral exhibited by Messrs. W. D. and R. Gilyard Beer.

Mr. T. D. Kendrick, Secretary, and Mr. C. A. Raleigh Radford, F.S.A., read a paper on Saxon discoveries at Yetminster, Dorset, and All Hallows' Church, Barking, London.



